Evaluation of the 20,000 Days Campaign

A REPORT FOR COUNTIES MANUKAU DISTRICT HEALTH BOARD

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Executive Summary

The aim of Counties Manuaku District Health Board (CMDHB) 20,000 Days Campaign was to give back to the community 20,000 healthy and well days to avoid predicted growth in hospital bed days. After tracking the difference between projected demand and actual use, at the end of the Campaign on 1st July 2013, CMDHB reported that 23,060 bed days were given back to the people of Counties Manukau.

An independent evaluation was requested by CMDHB in order to in order to understand why, and under what circumstances, the Campaign worked. A theory-based mixed methods evaluation - using interviews, a questionnaire and a review of Campaign materials - was undertaken to evaluate the Campaign.

Applying the IHI Breakthrough Series Collaborative

The Campaign was run following guidance provided by the Institute for Healthcare Improvement (IHI) using their Breakthrough Series Collaborative. Following this approach, the expectation is that small immediate changes to practical problems (in this case the work of 13 Collaborative teams) will accumulate into large effects (a reduction of 20,000 bed days against predicted bed days use by July 2013).

We tested the theory that CMDHB was able to reduce predicted demand on bed days by applying the IHI Breakthrough series to a diversity of improvement ideas wrapped around the communications and energy of a Campaign.

Being prepared to adapt and learn

The IHI Breakthrough Series Collaborative has been more commonly used when there is solid scientific evidence of what to do differently to get better outcomes. The sheer diversity of research evidence, change concepts, and best practice being implemented in a Campaign seeking to reduce demand for hospital care was a test of the IHI approach. The evaluation found the 20,000 Days Campaign coped with the diversity of change concepts in each Collaborative team by being prepared to adapt and learn as the process unfolded.

Of the original 13 Collaborative teams that started, 10 teams remained at the end of the Campaign. Eight of those teams went on to implement their changes into other parts of the system (for example into other wards or other community practices), while for the other two teams no further work was deemed necessary. The fact that different Collaborative teams demonstrated different levels of success was not unexpected, as there was not the same consensus around the scientific evidence on best practice as seen in single-topic Campaigns.

Engaging in change

Overall Campaign leadership was very successful in keeping the energy and motivation of Campaign participants in those ten teams throughout the 18 months. Eighty percent of questionnaire respondents agreed or strongly agreed that the Campaign made a contribution to building a culture of quality improvement. Seventy-eight percent agreed that it was the best thing CMDHB had done in a long time, and 71 percent said it was a huge success.

The value of the days saved target was seen by those leading the Campaign as providing a focus and end point, although streamlining patients' journeys and building the overall capability for change in the organisation were often singled out as of greater importance than saving the exact 20,000 days by both Campaign sponsors and Collaborative team leaders.

The 20,000 Days Campaign was "pushing on an open door" as the CMDHB culture was receptive and responsive to change, the broader policy settings reinforced the priority that needed to be given to the Campaign's goal, and local evidence of the need to do things differently was widely available.

Measuring change

Within the Campaign, the application of the Model for Improvement as a way of testing change ideas in small scale measurement cycles worked well. Campaign leaders explained that it meant teams were not just "sitting around in meetings talking" but were looking and learning from data. Campaign participants responded well to the new tools and processes, but were also realistic about how hard it could be at times to make these work. Participants reported applying improvement tools such as Plan Do Study Act (PDSA) cycles, agreeing goals and learning from tests that failed, but were more tentative when assessing how well they measured progress.

A secondary assessment by the evaluation team of eight Collaborative Team dashboards found data analysis was a point of vulnerability in the Campaign, due to difficulties in finding, interpreting and presenting data in meaningful ways. Initial expectations of what would be measured were not maintained, opportunities were missed to collect data by ethnicity, and the potential variability of indicators being tracked was not always taken into account.

Sustaining change

The phenomenon of what drives hospital demand was captured in the measures used in the overall Campaign dashboard. Attributing the trends observed directly to the work of the Collaborative teams was difficult, however, as a number of concurrent initiatives where occurring to reduce hospital demand. While a strong narrative of success was built around achieving the Campaign target, absorbing all the changes back into business as usual meant ongoing work negotiating change continued well after the Campaign end date was reached.

The first Campaign demonstrated the utility of the IHI model for improvement and Breakthrough Series. A second Campaign titled "Beyond 20,000 Days" started after July 2013; however this report focuses on the results and learning from the first Campaign only. Substantial learning was generated in this first Campaign to ensure the next set of Collaborative teams that made up the Beyond 20,000 Days Campaign would be set up to succeed. This learning is summarised at the end of the report on page 63.

Contents

Introduction

An independent evaluation of the 20,000 Days Campaign was requested by Counties Manukau District Health Board (CMDHB) in order to capture the impacts of the Campaign and provide formative lessons for future Campaigns.

The 20,000 Days Campaign was designed to enable CMDHB to avoid projected growth in hospital bed days through a diverse range of interventions. During the Campaign, between 80 -100 healthcare professionals were piloting and testing ideas of change in Collaborative teams. The aim of the first Campaign was to give back to the community 20,000 healthy and well days, by reducing the projected hospital bed days between October 2011 and July 2013. When the Campaign finished in July 2013, 23,060 days had been saved according to the tracking of actual bed days against predicted bed days.

A second Campaign titled "Beyond 20,000 Days" started after July 2013; however, this report focuses on the results and learning from the first Campaign only.

This evaluation applies a formative theory driven approach to answer the following evaluation questions:

1. How well, and in what contexts, did the Collaborative Teams work?
2. What features from the first Campaign most influenced how the second Campaign (Beyond 20,000 Days) was implemented?
3. What were the mechanisms by which the Campaign worked to achieve its longer term outcomes?
4. How did the Campaign meet its objective of giving back to the community 20,000 healthy and well days by the target date?

The 20,000 Days Campaign was a complex intervention in an uncontrolled environment. The focus of this evaluation is on understanding why, and under what circumstances, the Campaign worked [1].

The Campaign: a Quality Improvement Collaborative

The 20,000 Days Campaign fits within the broader school of Quality Improvement Collaboratives. Quality Improvement Collaboratives are not a single intervention, but are made up of many features, popularised most by the Institute of Healthcare Improvement (IHI) in their Breakthrough Series [2]. In line with many initiatives using the IHI Breakthrough Series, the expectation was that small immediate changes to practical

problems (i.e. the work of 13 Collaborative teams), would accumulate into large effects (a reduction in the projected 20,000 bed days growth by July 2013).

The evaluation

This evaluation seeks to be of practical use to CMDHB by highlighting the refinements needed for future Campaigns. Findings are also expected to inform ongoing discussions about the most effective activities within Quality Improvement Collaboratives, and in particular which features should be maintained because of their value to participants.

The international literature on Quality Improvement Collaboratives has regularly found variable evidence for their effectiveness [3]. Recently, recognising the variety of features that make up the Quality Improvement Collaboratives approach, there has been a broader interest in examining the influence of these features on performance, particularly from the Collaborative participants' perspectives [4-6]

Researchers are being advised to deal with this type of context-rich intervention by exploring both (1) the theory about the process by which quality Campaigns lead to changes in provider behaviour and organisation (i.e. the execution or implementation theory) as well as (2) how the Campaign targets result in better outcomes for patients and/or lower costs (i.e. the context theory) [7 8].

A logic model for how the Campaign was expected to have the hoped-for effects applied this distinction between the execution and content theory. The logic model was used to guide the questions and data gathering throughout the evaluation and is presented on page 18.

The Structure of this Report

Section One describes the key elements of the IHI Breakthrough Series and how CMDHB applied these elements to run a time-limited Campaign.

Section Two of this report presents details on the mixed methods used in the evaluation, and explains how the initial assessment by CMDHB of what worked well was supplemented by the research literature on features most likely to lead to success.

The evaluation findings are then presented in three sections covering the results from the interviews (**Section Three**), the questionnaire (**Section Four**), and a secondary analysis of the Dashboards which measured progress throughout the Campaign (**Section Five**).

Section Six brings these results together to discuss key themes and formative lessons.

Annex One provides a glossary of key terms used through this report.

Annex Two displays the driver diagram used to link the work of the Collaborative teams to the overall Campaign goal.

Annex Three presents the framework used for the questionnaire.

Figure One: The Campaign target as presented in Campaign Communications

Section One: The Campaign

This section summarises what happened in the Campaign, and outlines how the Campaign was expected to have an impact. CMDHB has a history of implementing new models to seamlessly integrate across primary and secondary care, particularly for those with chronic conditions [9]. A time-limited Campaign using the IHI approach put the emphasis on what could be achieved over an eighteen month period of concentrated activity.

The 20,000 Days Campaign was designed with recognisable features of the IHI Breakthrough Series Collaborative [10]. These features are listed below under "what is expected" followed by a description of what happened in CMDHB's Campaign.

Topic selection.

What is expected: Leaders identify a particular area or issue in healthcare that is ripe for improvement.

What happened: *In the 20,000 Days Campaign, an evidence-based session was held to select those interventions most likely to have a measurable impact on saving bed days. Discussions drew heavily on what was learnt from a range of previous work looking to integrate primary and secondary care across the region. Evidence was sourced from international experiences (for example, a UK developed predictive risk tool for hospital admissions) and local pilots (a Levin trial where St John transported patients to be managed at GP practices and Accident and Emergency centres)[1]. The expectation at the beginning of the 20,000 Days Campaign was that the Collaborative teams would address one of the five drivers of system change:*

- *Readmissions*
- *High frequency users/decreasing admissions*
- *Process efficiencies*
- *Decreasing harm*
- *End of life.*

As the Campaign evolved, a comprehensive driver diagram was developed to explain how the work of the Collaborative teams came together to influence the change in bed days being sought (Annex Two).

Faculty recruitment.

What is expected: Experts are asked to chair a Collaborative and create specific content including appropriate aims, assessment strategies, and a list of evidence-based changes. An improvement adviser teaches and coaches the teams on improvement methods and how to apply them in local settings.

[1] *Sourced from session notes (December 2011)*

What happened: *Individuals were approached by Campaign leaders to lead Collaborative teams across interventions looking to reduce admissions and emergency care presentations, reduce harm to patients and reduce length of stay, and increase access to community support. An experienced IHI improvement adviser visited regularly to provide training and coaching on the IHI model for improvement and to present at the Learning Sessions.*

Enrolment of Organisation and Teams:

What is expected: Organisations elect to join a Collaborative, and multidisciplinary teams are assembled to learn from the Collaborative process, conduct small tests of change and help successful changes become standard practice.

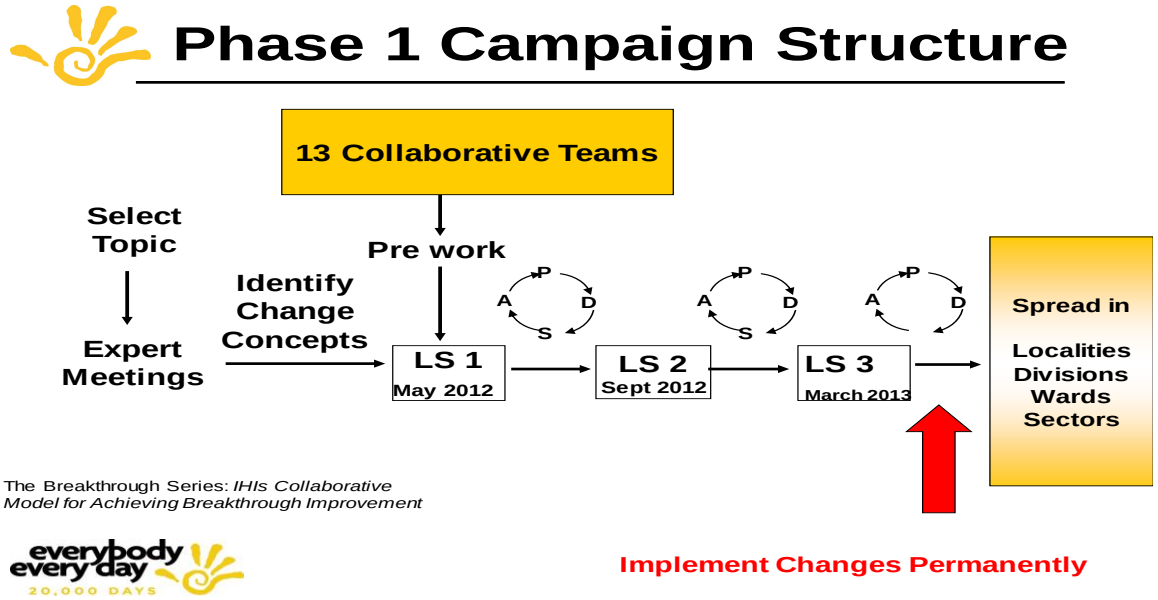
What happened: *In the 20,000 Days Campaign most of the activity centred within CMDHB rather than recruiting from other organisations. An Operational Group, comprising Campaign Manager, Campaign Clinical lead, along with Improvement Advisers and a Communications Co-ordinator, was the focus of centralised activity throughout the 18 month Campaign period. Thirteen Collaborative teams of between 8-10 members each were initially assembled. Some of these encompassed groups already working together on quality improvement projects, while others were assembled specifically for the Campaign. Most comprised mainly CMDHB staff with some involvement from local general practices and community groups. The teams choose to participate and were not mandated to do so. Box One provides details on the Collaborative teams. Most of the Collaborative teams were working with a change concept that was as much about improved care in some form as it was about reducing bed days.*

Learning Sessions:

What is expected: Learning sessions are face-to-face meetings (usually three in total) which bring together multidisciplinary teams to exchange ideas. At these sessions, experts teach participants about the evidence base and quality improvement methods (e.g. how to plan, implement, and evaluate small changes in quick succession), and participants report their changes and results, share experiences, and consider how to spread their innovations to other sites.

What happened: *During the Campaign, a total of six days of learning sessions were attended by 80 –100 people. Figure Two presents the 20,000 Days Campaign structure following the typical elements of the IHI method including the three learning sessions (LS1, LS2, and LS3).*

Figure Two: Key Elements in Campaign



Action Periods.

What is expected: Between learning sessions (during "action periods"), teams test and implement changes in their local settings and collect data to measure the impact of their changes.

What happened*: In the 20,000 Days Campaign, each Collaborative team had a project leader as well as a clinical leader, supported by improvement advisers from Ko Awatea[2], overseeing regular meetings between learning sessions to develop their change package. Campaign management focussed on enabling teams to make changes and troubleshooting when teams were not working.*

The Model for Improvement.

What is expected: To apply changes in their local settings, Collaborative participants learn an approach for organising and carrying out their work called the Model for Improvement. This model covers four key elements of successful process improvement: specific and measureable aims, measures of improvement that are tracked over time, key changes that will result in the desired improvement, and a series of testing cycles (known as Plan Do Study Act or PDSA cycles) during which teams learn how to apply key change ideas to their organisation.

[2] Ko Awatea is the name given to CMDHB's Centre for Health System Innovation and Improvement which provides not only a physical centre (the Ko Awatea Centre for Education and Innovation) but also focuses on Workforce and Leadership Capability, Quality Improvement and Research, Knowledge and Information Management.

What happened*: A cohort of people experienced at using the tools of improvement science was being built through a partnership between Ko Awatea and the IHI at the time the Campaign started. The expectation was that these skills would support the development of the change package, and the application of Plan Do Study Act (PDSA) cycles within Collaborative teams.*

Summative Congress.

What is expected: Once the Collaborative is complete, the work is documented and teams present their results and lessons learnt at a final conference. They share what they had learned, and make plans to sustain and/or spread the improvements to other facilities within their organisation.

What happened: *The 20,000 Days Campaign had a final learning session in March 2013 followed by a series of communications in July 2013 when the target was reached. To build on the improvement work, 16 further collaborative teams were then established in the next Campaign known as "Beyond 20,000 days". These teams are expected to continue to find ways to reduced hospital demand.*

The IHI method has been adopted on a large scale by the United States' Health Resources and Services Administration, and the United Kingdom's National Health Service, but it is still relatively uncommon to cover a diversity of change ideas under one Campaign umbrella. The 20,000 Days Campaign was distinctive in the way it extended the IHI Breakthrough Series Collaborative from one that normally spreads well-known best clinical practice to a broader topic of reducing demand for hospital care.

In 2002, one expert questioned whether the collaborative method was effective only for specific subjects relating to clinical practice and treatment processes. Suggesting a collaborative to "improve cooperation between primary and secondary care" is not likely to be effective, Øvretveit and colleagues pointed to the difficulties encountered when each team is working on significantly different types of improvement. Problems arise because there may not be clear or directly comparable examples of best practice, change concepts, or good research evidence [11]. The discussion in Section Six explores how the 20,000 Days Campaign coped with the diversity of change concepts.

Box One: List of Collaborative Teams

Better Breathing – an intervention for people with chronic respiratory conditions in Community Pulmonary Rehabilitation programmes seeking to lower hospital demand by increasing the amount of care available in the community.
Healthy Hearts – a multidisciplinary pathway for patients with heart failure, seeking to improve heart failure diagnosis and management across the continuum of admission, discharge, out-patient services and community.
Transition of Care and St John – seeking to avoid unnecessary delays by providing a goal discharge date for patients in surgical and medical wards in Middlemore Hospital.
Very High Intensity User – reduce unplanned presentations and admissions through a pilot project to provide integrated case management for very high intensity users of hospital care.
SMOOTH (Safer Medicines Outcomes on Transfer Home) – reduce the number of errors which have the potential to results in re-hospitalisation through a medication management service at discharge and during the immediate post discharge period.
Skin infections and Cellulitis – develop and implement a cellulitis pathway within the hospital. Cellulitis being a predictable and preventable condition that contributes significantly to avoidable hospitalisation and is amenable to better clinical management in the community.
Enhanced Recovery After Surgery – establish a multi-disciplinary care pathway for patients undergoing primary hip and knee surgery and reduce the length of stay for hip and knee patients.
Delirium – increase identification of delirium by completing a CAM (Confusion Assessment Measure).
Helping High Risk Patients – provide a co-ordinated planned management set of interventions for high risk patients and reduce the demand for unplanned hospital admissions and bed days.
Hip Fracture Care – reduce average length of stay for older hip fracture patients by providing a 7 day rehabilitation service.

The Logic Model

For the purposes of the evaluation, a theory of how the Campaign was expected to have an impact on its unifying goal of giving back 20,000 days to the community was developed. Figure Three displays the chain of reasoning from the activities of the Campaign through to the change expected in healthcare outcomes. Early interviews with those most closely

associated with the Campaign, as well as literature on similar initiatives, was used to construct this account of why the activities undertaken should lead to the outcomes sought.

The model covers both the activities used to engage participants and change how they act (the execution theory), along with the expected changes in clinical processes and outcomes improvement work (the content theory) [8].

We hypothesised that CMDHB was able to reduce predicted demand on bed days by applying the IHI Breakthrough series to a diversity of improvement ideas wrapped around the communications and energy of a Campaign.

The execution theory.

The execution theory for the Campaign draws heavily on the IHI Breakthrough Series Collaborative sequence of activity outlined earlier in this section. In the 20,000 Days Campaign, a campaign structure was used to give a visible end point to this activity. The execution theory is laid out in the input, activities, and short term outcome columns in Figure Three. These focus on what the Campaign did to lead the teams to adopt the process changes.

Philosophically, the IHI approach sits within the "Science of Improvement" which uses two critical ideas: (1) all improvement comes from developing, testing and implementing changes, and the role of measurement is to create feedback loops to gauge the impact of these changes and (2) front line staff closest to the issue play the lead role in developing changes and testing whether these change result in the improvements predicted [12].

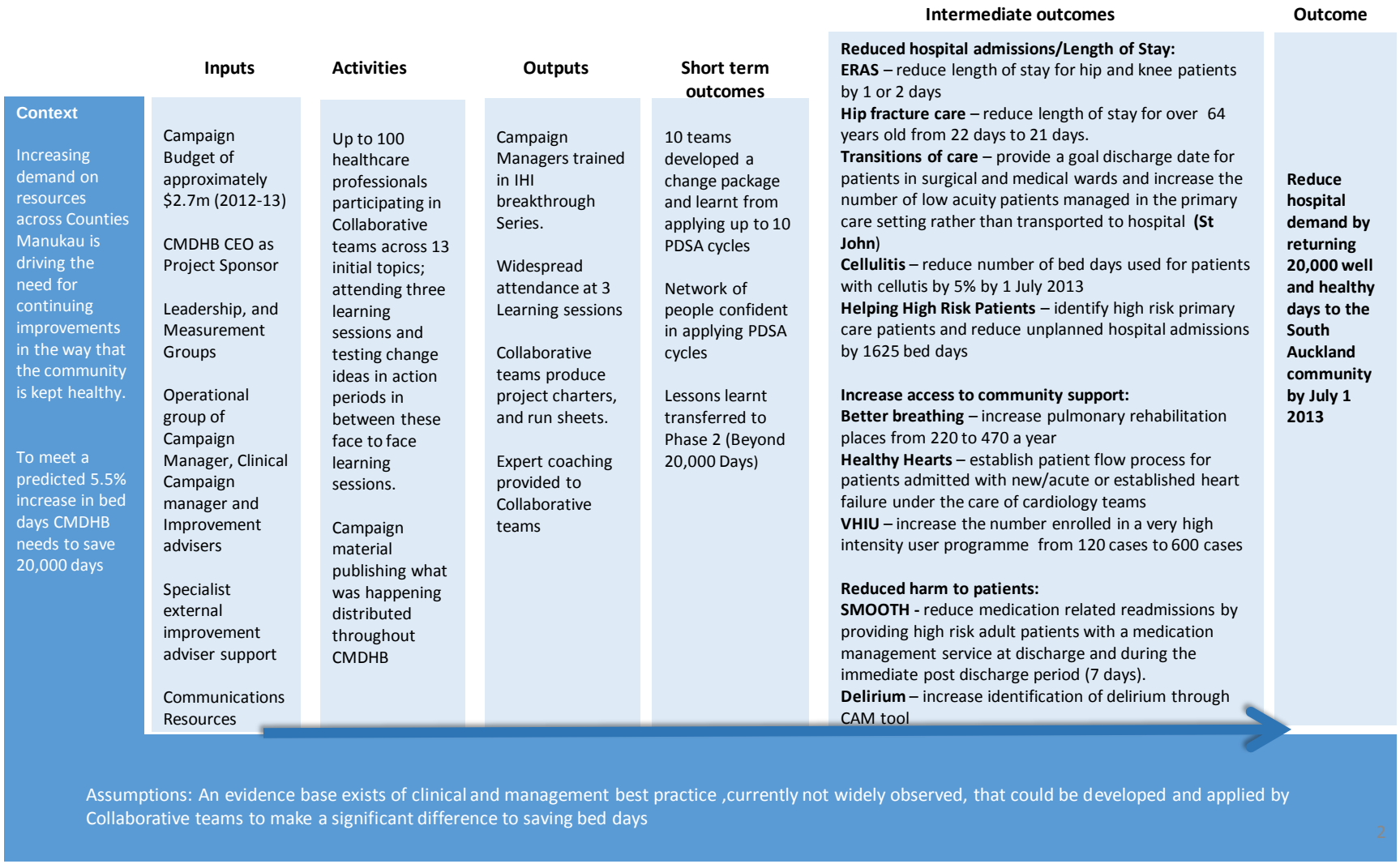
Collaborative improvement teams have many of the characteristics of communities of practice where identification with the initiative as a whole can overcome inter-professional or intra-organisational differences [13]. They also draw generally on the growing evidence that effectively functioning teams are generally associated with higher quality of care, with a common caveat that a supportive organisational environment is needed to develop such high functioning teams [14]. Internationally, the experience from Safety Campaigns is that quality improvement communities should combine grass roots momentum with a vertical integrating structure that co-ordinates and manages potentially competing interests and motives [15].

The content theory

The content theory is laid out in the columns covering the medium term and long term outcomes. These columns display the changes expected from each of the final 10 Collaborative teams and were constructed from a review of their project aim statements. Page 26 discusses in more detail what happened during the Campaign to result in 10 teams finishing the campaign after 13 teams started.

A note on the two Campaigns: Throughout this report the focus is on the 20,000 Days Campaign which ran from June 2011 to July 2013. A second Campaign titled "Beyond 20,000 Days" started in August 2013 with the aim *"to continue giving back healthy and well days to our Counties Manukau community by 1 July 2014".* In this second Campaign a different set of Collaborative teams was supported through the IHI Breakthrough Series Collaborative. This second Campaign used similar branding, though less attention was paid to a final number of bed days saved.

Figure Three: Campaign Logic Model



Section Two: Method

The research comprised mixed methods. Qualitative and quantitative data collection were collected in the form of semi-structured interviews and a questionnaire along with a review of Campaign documents.

During 2013, an evaluability assessment was undertaken to build the theory of how the Campaign was expected to result in change [16]. This included a review of Campaign planning documents and eight semi-structured interviews. The following evaluative questions emerged from this assessment:

1. How well, and in what contexts, did the Collaborative Teams work?
2. What features from the first Campaign most influenced how the second Campaign (Beyond 20,000 Days) was implemented?
3. What were the mechanisms by which the Campaign worked to achieve its longer term outcomes?
4. How did the Campaign meet its objective of giving back to the community 20,000 healthy and well days by the target date?

The literature on quality improvement collaboratives has stressed that participants' views are important for understanding the conditions under which Campaigns may be more or less effective [17]. The methods for this evaluation combined data from interviews, and a questionnaire, to elicit these views. In order to understand more about the type and size of change being measured a secondary analysis of the Collaborative team dashboards was undertaken.

All research procedures were approved by Victoria University Human Ethics Committee and by CMDHB's own ethics process.

Interviews

Nineteen semi-structured phone and face-to-face interviews were held with a cross-section of Campaign sponsors and Collaborative team leaders in March 2013 and March 2014. The first set (N=8) were held four months *before* the Campaign finished and highlighted experiences with the roll-out of the Campaign. A further set of interviews (N=11) were undertaken eight months *after* the Campaign finished (March 2014) split between:

- Campaign sponsors, i.e. those in roles overseeing the budgetary oversight, the relationship with Ko Awatea and the relationship with the senior management team, as well as Campaign project leaders and improvement advisers (N=6).

- Collaborative team leaders who directly oversaw a topic based Collaborative team within the Campaign (N=5).

During the interviews, which lasted up to 40 minutes, interviewees were asked to reflect on their experience during the Campaign. They were asked, for example, where they thought they made the greatest progress, and what enabled them to do so, as well as where they faced the greatest challenges, and how they addressed these. Of the features they identified (both positive and negative), they were then asked what they thought most shaped the thinking about the next Campaign (Beyond 20,000 Days).

Interviews were audiotaped and transcribed to create a qualitative data set. The data set was entered into Nvivo and coded and grouped thematically. An account of the implementation and performance of the Campaign was obtained through a qualitative analysis process of identifying a thematic framework and mapping and interpreting against that framework [18]. A total of 19 interviews were held overall in the evaluation (including the eight conducted for the evaluability assessment).

Questionnaire

The questionnaire assessed the overall helpfulness of 6 specific features of the Campaign's design and implementation. These features came from two instruments developed to identify the features of quality improvements programmes that lead to their success:

1. A 40 item questionnaire grouped items linked to sufficient expert team support, effective multidisciplinary teamwork and helpful collaborative processes. Developed by Schouten and colleagues [19]. This instrument is based on the literature and opinion of quality improvement experts, and was identified in a systematic review of continuous quality improvement instruments as applicable to the IHI quality improvement approach [20].

2. The Model for Understanding Success in Quality (MUSIQ) developed by Kaplan and colleagues was also used to probe a wider set of organisational and team contexts [21]. The recognition that change processes operate at collective organisational and cultural levels has led to a wider interest in understanding quality improvement as a social process [22]. This instrument paid attention to those organisational and team contexts.

The questionnaire developed for this evaluation combined and adapted these two instruments. Respondents were asked to rank a series of statements according to whether they: strongly agreed, agreed, neither agreed nor disagreed, disagreed, or strongly disagreed. The statements were grouped into six categories:

1. Collaborative team environment (i.e the way the team worked).

2. Improvement tools (particuarly the project charters, run charts and use of measurement as captured in the model for improvement and Plan, Do, Study Act cycles).
3. Resources and information (for example the training, data and financial supported provided).
4. The structured method (particuarly the IHI breakthrough series outline of learning sessions and action periods).
5. Support from the experts.
6. The organisation and the value placed on quality improvement generally.

Annex Three displays how the final statements mapped to the two instruments. The questionnaire was conducted online using Qualtrics. Respondents accessed the survey through a URL link sent by email. No incentive was offered. Individuals were identified by the Campaign project leaders, and the invitation to complete the questionnaire came initially from the Campaign project leaders, with a reminder sent by the HSRC research team.

Thirty-nine responses were received from a total email list provided by the Campaign team of 160 names. These names covered everyone who had a relationship with the Campaign, and not just those who actively worked in the Campaign – i.e. attended learning sessions and participated in action periods. A reminder email revealed that 10 of those emailed were no longer accessible at that email address, leaving a total of 150 questionnaires. While everyone was emailed, and the replies were anonymous, the respondents (apart from 2) self-identified as coming from the 10 teams that completed the Campaign. Given the large size of the original email the response rate was small at only 26 percent (39/150). Discussions with Campaign leaders indicated that a potential pool of active Campaign participants was likely to be 80 rather than the 160 emailed, so 39 replies could be viewed as more representative than initial response percentage suggests, i.e. 37/80 = 46%.

As well as statements grouped within six categories, statements about the Campaign overall were included, with check questions inserted with reverse coding to ensure that respondents were actually thinking about the meaning of the questions. At the end, open ended questions were used to gather clarifying information and some demographic information about respondents was also collected.

A qualitative analysis was carried out on the open ended responses based on a deductive strategy which aimed to verify concepts previously identified in the research model and to uncover new concepts arising from the particular experience of these participants.

The dataset was inductively coded following a procedure outlined by Thomas [23]. The raw responses were sorted and ordered into a spreadsheet. Then, through multiple readings of each response, themes and categories were established by summarizing, sorting, and grouping. The key themes and categories were laid out in a table.

Secondary analysis

We obtained dashboard data from eight of the ten Collaborative teams. Where available we analysed the raw data behind the dashboards. When indicator information was incomplete, we asked the quality improvement officers that supported the Collaborative team to provide us with either the raw data, or a measurement of the indicator. Dashboards and data were assessed against the defined indicators in the final project charter[3] of the Collaborative. When indicators changed, or were replaced, we looked for justification for that change either in the Collaborative reports or from the quality improvement officers supporting that specific Collaborative.

Limitations

While the evaluability interviews (N=8) were conducted before the Campaign ended, the main interviews (N=11) were conducted in March 2014; 8 months after the Campaign target was reached. This had the advantage of gathering overall reflective comments, but also may have meant interviewees had forgotten key aspects of their experiences.

The response to the questionnaire was lower than desirable. As well as initially being emailed to a larger group than those who were not actively involved in all aspects of the Campaign, the questionnaire was distributed 9 months (April 2014) after the first Campaign ended. The Campaign project leaders noted that some teams were considerably smaller by the time the questionnaire was distributed. One Collaborative team for example now had only three initial members left after starting with 10. The results of the questionnaire could be argued to cover a small group who are unduly positive, but this can be countered by (1) a recognition that this group may be more representative than the initial response percentages suggest and (2) a concurrence of themes and experiences with those that were interviewed in greater depth.

[3] The project charter is the official project description where aims, expected outcomes and measures are defined by each one of the Collaborative teams.

Section Three: Analysis of the Qualitative Interviews

This section outlines the perceptions of those involved in the implementation of the Campaign, and their understanding of the ways by which the Campaign achieved its outcomes.

Semi-structured interviews were conducted four months before the Campaign ended and eight months after the Campaign was was completed (N=19). The first set of evaluability interviews (N=8) covered four Campaign sponsors and four Collaborative team leaders. The second set of interviews conducted eight months after the Campaign finished covered six Campaign sponsors and five Collaborative team leaders.

The analysis is organised into three major themes. The first, entitled "pushing on an open door", explains how the 20,000 Days Campaign was able to draw on features that collectively created a fertile ground for change.

The second points to the incremental style of implementation of the Campaign - what participants would characterise as a "learning as you go" initiative.

Finally the third theme highlights the challenges of embedding the various changes piloted by the Collaborative teams into everyday practice

A note on terminology: Throughout this section reference is made to the Institute of Healthcare Improvement (IHI) "method" by those interviewed. Throughout this report we have differentiated between two parts of this "method". The first, labelled the Model for Improvement, covers the fast paced repeated small cycle improvement method known as Plan Do Study Act (PDSA) cycles. The second covers the work undertaken under the banner of the IHI Breakthrough Series, and relates to the process by which these PDSA cycles are embedded within team based improvement collaboratives and learning events.

Campaign environment: Pushing on an open door

The Campaign benefited from an environment well primed for system-level change and was nested within a wider strategy by CMDHB to manage demand for hospital admissions and improve the care of people with long-term conditions. Awareness that CMDHB could not rely on hospital based health-care to the extent that they do currently was mentioned frequently by those interviewed as the "burning platform" for the Campaign. The likely size

and effect of increased pressure from acute adult medical and surgical admissions was presented in the original Campaign Plan:

> *Between 2005 and 2010, the demand for hospital beds has been growing 2% faster per year than what is expected from pure demographic growth. The extra non-demographic growth relates to patients' expectations and technological drive, change in disease prevalence, for example diabetes, obesity etc. Demographic growth that accounts for the growing population, ageing population, change in ethnicity mix and "baby boomers" cohort effect is expected to increase hospital demand by 3.5% per year from 2011. Given a projected 5.5% increase in bed days annually (i.e. demographic and non-demographic growth), we need to ….adopt the targets of giving back to our community 20,000 healthy and well days.* (Campaign project plan 2011)

The Campaign enlisted professional communications support for branding and marketing. The modelling outlined above was regularly summarised in leaflets and other presentations. While some noted this played a role in building motivation for the Campaign, a more common observation was that the Campaign tapped into a deeper CMDHB culture of being innovative. A culture of being prepared to try new things, as explained by one interviewee:

> *I think that our population is very diverse, and our staff reflect and embrace this diversity and I think that it was an opportunity to do something different which I think is embedded in the psyche of Counties staff. I have been here for a while and what impresses me is the receptiveness to do something differently, and be as creative as we can to embrace the diversity of our whole population. (Collaborative team leader)*

While other quality improvement methodologies were available, and earlier work in the Emergency Department had used an A3 methodology[4], the decision to run a Campaign using the IHI Breakthrough Series methodology was seen as a fairly straightforward decision. The creation of Ko Awatea[5], the appointment of a senior leader with IHI links, along with a CEO who had had experience with earlier IHI Campaigns, meant an emergent capability was already available.

The appeal of the IHI's structured approach is illustrated by the following quotes:

> *I think that the way that the Campaign works has two strengths for getting engagement. One is that it starts with our existing frontline workforce and their ideas on what could make things different. As opposed to an ELT team, sitting around and*

[4] A3 is a structured problem solving and continuous improvement approach first employed at Toyota.

[5] Ko Awatea is CMDHB's learning and innovation centre. Ko Awatea provided the coaching, the teaching and the venues for the structured learning sessions as well as bringing together the "content experts' and improvement advisers.

> *coming up with good ideas, it is actually starts with going out to the people who are doing it day to day and asking how it could be done differently. That immediately has more clinical ownership that comes with it. The second thing is that the collaborative methodology gives things structure and form. I have worked in lots of different health organisations and there are always a lot of people who have good ideas, but what this Campaign has is a way of taking things from conceptualisation to actual delivery. (Campaign Sponsor)*

> *Although the [*collaborative topic*] was going prior to the Campaign I have no doubt the method has helped in terms of all aspects of service delivery, relationships, measurement and implementation. (Collaborative team leader)*

Resourcing the Campaign was not insignificant. At $2.7 million (2012-2013 actual costs) the Budget was divided between one third for improvement support, which covered improvement advisers and project managers, with the other two thirds going towards new activity in the Collaborative teams. With a third of the cost going to project overheads, one interviewee reflected that this was high compared to other project overhead costs, but acknowledged that collaboration is very resource intensive.

Two consequences were noted as a result of the Campaign's ability to secure resource in a financially constrained environment: (1) a continued level of scrutiny of the business case for the work of each of the Collaborative teams and (2) an incentive for those who wanted to implement new programmes to retrofit their ideas to the Campaign's aim, as there was little funding available for any other new projects.

Following IHI advice to pay attention to "creating will" at the start of Campaign, the Campaign leaders set out to find and work with those clinical and service leaders willing to head a Collaborative team. A number of sessions were held engaging primary and secondary care to gather ideas on the sort of activity that might save 20,000 days. Change initiatives already in train, often as a result of other work, particularly the work of the Greater Auckland Integrated Health Network (GAIHN), were rolled into the Campaign. This shoehorning had the advantage of ensuring alignment with current work;

> *It was very important not to double up as there were clinical leaders in GAIHN and we didn't want all these people duplicating their time. It was very important for us to build on work that had already done rather than starting from scratch. (Campaign sponsor)*

As more was uncovered about the type of projects and topics most amenable to the IHI approach, incorporating work that was already happening also had some risks. Thirteen collaborative teams started in the Campaign but 10 finished in 1 July 2013 (see Figure Four).

Some general lessons were drawn from those teams that dropped off or merged:

- Projects that had already been in existence for some time did not find it helpful to come back and try and put the Model for Improvement on the top of what they have already started. Projects following a strong project management philosophy in particular, often had a high degree of belief that their idea for change was ready to spread. Rather than spend time testing the idea, they wanted to move quickly to implementing change.

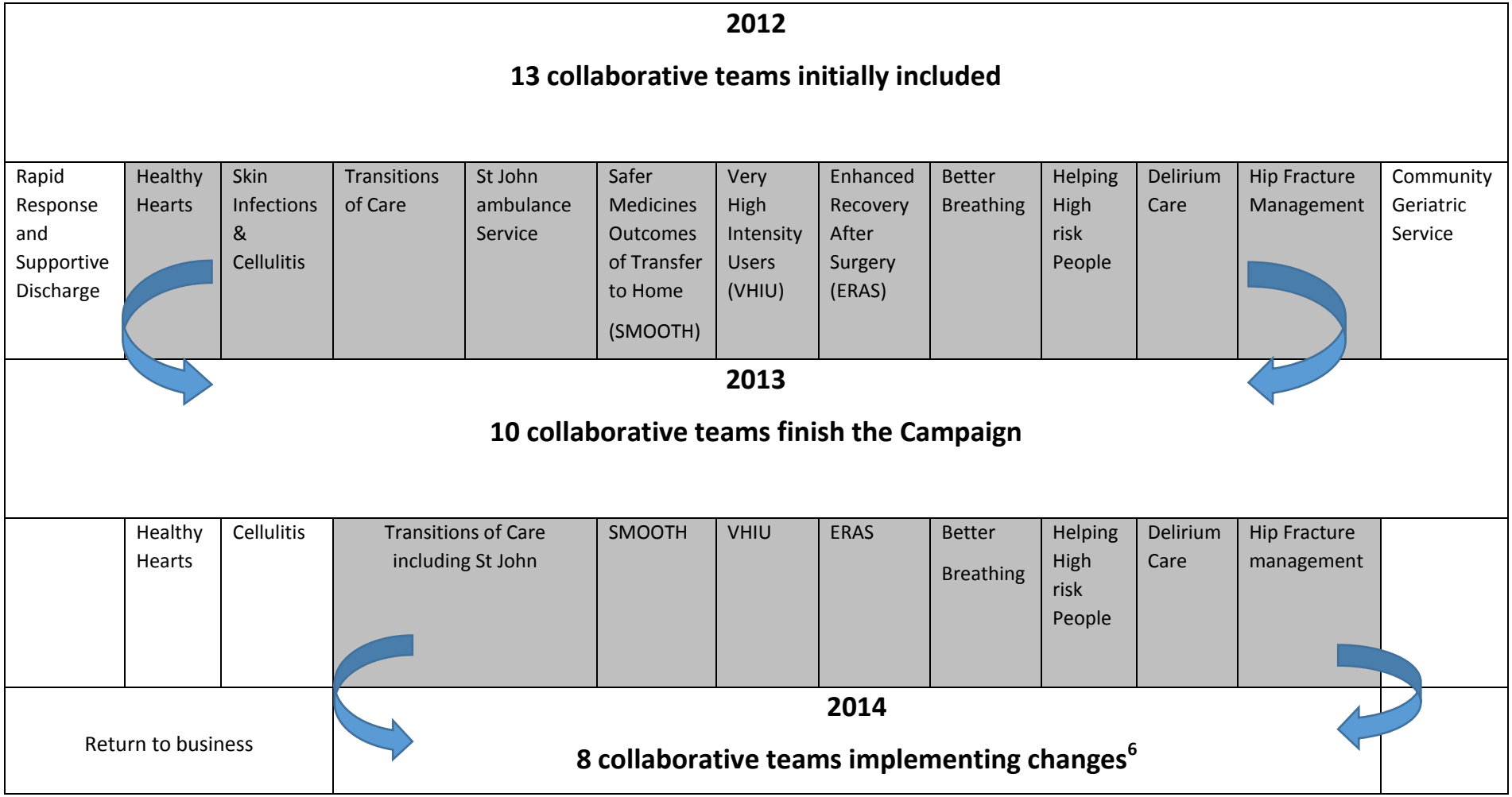
- Not all projects were amenable to the IHI Breakthrough Series process. While they covered work that needed to be done, it was not necessarily of a size or complexity that required multidisciplinary teams to come together in regular meetings. As one Collaborative team leader explained:

  > *I think [collaborative topic] is a very specific question, and I think from what I have seen ….. collaboratives should be broad ranging, bigger topics, with more extensive change, like a smoking cessation campaign".*

- Some Collaborative teams never "moved into the hard work and effort that they needed to" and this was linked to a poor problem definition, or a lack of support from their particular working environment or "shop floor". While the Model for Improvement was acknowledged as useful for picking up those that get lost down "rabbit holes", a number observed that different service sub cultures that were more conducive to change than others.

- Finding leaders of topics initially overrode concerns that teams were covering overlapping areas. Over the course of time, some teams did come together (for example St John and Transitions of Care) but individuals were allowed to trial ideas separately.

Figure Four: Evolution of Collaborative Teams



[6] For these 8 teams the changes were judged to be of sufficient impact to be spread to other areas. For the remaining 2 teams out of the 10 that completed the Campaign the changes had achieved all they were going to and further work was not judged necessary.

The IHI approach pivots around letting those at the frontline work on issues that are important for them, so it was a delicate balance between allowing ideas to surface and then deciding which ones should be resourced as part of the Campaign.

Initial business cases were developed by all teams in the first stage; referencing the three positioning questions from the Model for Improvement, along with the bed day savings they expected to achieve. The three questions were:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What change can we make that will result in improvement?

Looking back on these initial business cases, a number of interviewees noted these were driven by a need to get something going;

> *In the first round, … it was about who had some good ideas and the appetite to want to implement those ideas… it certainly was a case of picking projects that had high levels of engagement and desire to win and succeed. Not all of them got across the line. It was around this first frontier really. It was about going with the willing, and people who understood what we were trying to do. (Campaign sponsor)*

Spurred by the partnership between Ko Awatea and the IHI, the broader climate for the Campaign also benefited from the amount of quality improvement training available. This training involved both (1) Improvement Science Training on the Model for Improvement for Collaborative team leaders and members and (2) Breakthrough Series Training for Campaign leaders. The IHI Model for Improvement was not unfamiliar given a focus on continuous improvement in CMDHB, so interviewees noted the soil was relatively fertile for the Campaign as "all the training meant there were a lot of ducks lined up".

Implementing the Campaign: learning and adapting

What worked well?

A summary booklet produced at the end of the Campaign [24] listed the following five aspects as those that worked well for the Campaign:

1. Alignment around a common goal
2. Leadership and expert support for the Teams
3. Multi-professional Teams working across the Health Sector
4. The Model for Improvement – this included the application of the PDSA approach

5. A structured series of milestones and activities – this included the IHI breakthrough series activity including learning sessions and the periods of action between.

This list was used to prompt discussion with interviewees. When asked to identify which of the five in the initial CMDHB list made the biggest difference to the Campaign, many acknowledged the importance of the Model for Improvement. Applying the Model for Improvement meant teams were not just "sitting around in meetings talking" but were looking and learning from data.

A few stressed that all the five features worked as a package, and could not distinguish one above another, but others were prepared to highlight what stood out as distinguishing features, and why these were important given their particular experience in the first Campaign. These are discussed in priority order across all those interviewed below.

The Model for Improvement

Learning from failure is at the heart of the Model for Improvement; the more small scale tests that are done, the more is learnt about what is happening in a system and how to effect change. As one Campaign sponsor explained, this approach kept teams on track;

> *What we thought teams were going to achieve initially was often very different from the reality. What they thought was a solution to save bed days, turned out not to be the case. And that was alright. But it steered them to where they needed to focus. (Campaign sponsor)*

This observation was echoed by the Collaborative team leaders. The model was useful because "it takes a good idea and then tests if it is going to deliver what you think it will deliver". For one of Campaign sponsors, a large amount of the initial work brought to them involved a "theory of change" that was educational; i.e. a belief that if enough information was distributed then health professionals will change behaviour. The Model for Improvement was invaluable in testing those ideas in small scale measurement cycles.

The following quote encapsulates the way the model focussed on learning and adapting for those involved;

> *My credit goes to the project team to constantly lead people back to the methodology; to basic stuff like the PDSA, "why don't we try with one". One of the consultants was very keen to make it as academic project and the methodology saved us from being a research project, but at the same time at the other end of the scheme you had people who were randomly going to go off and do something, it brought them back to the table. It had a shared usability: let's try with one, let's try with five, let's just review the data. (Collaborative team Leader)*

Many Collaborative team leaders were able to vividly describe how their initial assumptions of what they were seeking to do were overturned as they undertook PDSA cycles. For example, initially assuming they were spreading a particular clinical tool only to find the tool needed adjusting to make it more "user friendly", or expecting that because a model of care had already been piloted it could then be spread, only to find that the model of care had not yet been developed in a consistent reliable way.

Some teams found ongoing measurement work highlighted a smaller problem than originally thought, or issues with respect to where decisions where being made. One had tried something similar at another DHB, but the idea failed because it did not pick up on the particular context in which delivery occurred.

A fairly common observation was the way doing a PDSA become part of the culture and language;

> *The tools that we learned, and it is hard to reflect on now as they have started to be part of the culture, this is how we test using the PDSA cycles; this is how we measure, these are now part of the air that we breathe. (Collaborative team leader)*

> *The Model for Improvement, as I said before became a part of our culture, part of way that we do things now, and we PDSA things which has become a verb and a noun. (Collaborative team leader)*

Campaign sponsors also noted a shift in the way change is talked about and understood:

> *The big achievement of the first phase was to build the literacy and the ability to have conversations around improvement which will play out a lot more in the second phase. (Campaign sponsor)*

> *The reality is that even now the 8 that are permanently implemented are only just getting to spread. It is about the language as well and our understanding of what implementation actually means. It is different to what you think implementation is. When you are spreading reliably and consistently, when you have set up all your new structures, and making sure that it becomes embedded in daily practice…. and all new staff are oriented to this new daily practice … only then you can spread. It has taken us 2 years to get to this stage for some of the projects. (Campaign sponsor)*

A few pointed out that within the Model for Improvement were some basic fundamentals available from any quality improvement package that expects you "to look at your root cause analysis and look at your data" but what was most important was sustaining what was started.

Leadership and expert support

Campaign sponsors spent time in the early days of the Campaign engaging the senior leadership team and actively recruiting clinicians to support the work of each collaborative team. One Campaign sponsor explained that while this is clearly important, based on advice from international experiences, the small intimate nature of the professional relationships in New Zealand made it doubly important to get the right people on board. The IHI advise having a clinical doctor at the head of each team, but in the 20,000 Days Campaign other health professionals were partnered with clinical leads in recognition that:

> *..this is not going to fly here, so we did adapt it to our context, as ours is much more about working with the willing. (Campaign sponsor)*

Comments from those that led Collaborative teams reinforced the importance of involving the right people; in this case, the right frontline staff actively piloting the change, as well as influential clinicians. Resistance from clinical leaders was attributed to the newness of the method, and the desire of clinical leaders to see results and evidence before they got involved.

Collaborative teams included health professionals, managers, clinical leaders, project managers, improvement advisers, data analysts and community members. For many, being involved was a huge commitment, additional to the work they are expected to do. The importance of finding a "passion to make a change" as well as the learning sessions which provided expert input to move to the next stage, were an important part of keeping the motivation going.

Multi-professional teams

Along with the simple art of talking to your colleagues as you were "forced you to sit down and talk to the people you work with daily", the mix of professions within teams was observed as a spur to building a particular type of skill i.e.:

> *I think it shifted away people from their individual practice with patients,… it got people thinking about the service. Which I do not think, with the team I was working in, individuals were doing. You might have had senior staff looking at a bigger picture but it started other people looking at their practice in terms of qualitative and quantitative feedback. (Collaborative team leader)*

Whilst the Campaign expected to bring in participants from across the region interviewees did note that the bulk of participants came from with CMDHB. Less emphasis was put on the benefits of creating a new multi-disciplinary team as many knew each other already. What was added, a number stressed, was an improved quality of conversation.

IHI Breakthrough Series

The IHI Breakthrough Series follows a clear timeline which moves reasonably quickly from theory to actions, using both the Model for Improvement and a structured series of milestones and activities.

The style of implementation of the first Campaign was widely reported as one of shared learning. Campaign leaders acknowledged they were taking cues from how the IHI method rolled out in the nation-wide CLAB Campaign[7]. While for most the organic growth worked;

> *I think there was a reasonable amount of preparation and awareness raising. There was a real sense people were going to put their hands up. It gathered momentum from the initial discussions around what more could be done, though it was not as socialised as it could have been. It was more of an organic growth, but then it got closer to kick off, that was when the whole concept took off. (Collaborative team leader)*

The risks of running with the willing was seen in perceptions that those directly involved in the Campaign were a "remote and elitist" group, and sometimes opportunities were missed to ensure that topics and team membership were broader than just hospital based services.

The senior leadership of CMDHB were supportive of the evolving nature of the Campaign's implementation. Campaign sponsors reported seeking feedback on different Collaboratives, gathering survey feedback from learning sessions and project debriefs to evaluate the process of the first Campaign. Decisions about what to do in the second Campaign were reportedly built from these insights, as well as a stronger set of underpinning statistical information.

The philosophy of learning and adaption encompassed by the IHI Breakthrough series approach also permeated the style of operation of the Campaign which was summarised by one interviewee as a "culture of learning". Another pointed out it was about "small incremental change". The initial set of Collaborative teams may have meant going with "the obvious choices" but these created enough interest that a second Campaign was introduced after the target was reached. The next section outlines what was taken into this second Campaign.

[7] Target CLAB Zero Campaign was run across New Zealand from October 2011 to April 2013. This Campaign also used the IHI Breakthrough Series Methodology and was run out of Ko Awatea at CMDHB on behalf of the Health Quality and Safety Commission. The aim was to reduce the rate of Central Line Associated Bacteraemia (CLAB) in hospitals throughout the country towards zero (<1 per 1000 line days by 31 March 2013).

What changes were made in the next Campaign?

In 2013/14, a second Campaign was introduced under the banner of "Beyond 20,000 Days". For this second Campaign , more attention was paid to the process of choosing the Collaborative teams. In the first Campaign they worked with those willing to apply the IHI method, and often inherited work that was already underway. Now CMDHB wanted to make sure the selected teams were "directly linked with system integration and reducing acute demand". More attention was paid to getting projects to join forces and move beyond hospital based teams, in order to demonstrate the change being sought occurred across the system.

A "Dragons' Den" panel was assembled and prospective Collaborative teams presented their ideas and got feedback, as well as support on whether to proceed. Unlike a more traditional Dragons' Den, where entrepreneurs bring ideas and get a straight yes or no answer, this process put more emphasis on improving the fit of the work with the overall objective of Beyond 20,000 Days. How change ideas would be measured was also a stronger part of early discussions. The Dragons' Den was less about avoiding failure, and more about ensuring that the type of improvement sought had been tested for the potential scale of impact. Box Two displays the prioritisation framework used to pick the Beyond 20,000 Days collaboratives:

Box Two: Beyond 20,000 Days Collaborative Team Prioritisation Framework

			Relative Weighting	
1	**Likelihood the proposed intervention will achieve the predicted bed day saving in Year 1**			
	a	Low Likelihood - Little confidence that intervention will achieve its predicted bed day savings	0.00%	
	b	Moderate Likelihood - Confident but with some reservations	29.20%	
	c	High Likelihood - High level of confidence that proposed intervention will achieve its predicted bed day savings	41.70%	
2	**Intervention State of Readiness to Implement (include any expected delays)**			
	a	Long delay (>12 months lead in time to implementation expected)	0.00%	
	b	Moderate delay (>3 months < 12 months lead in to implementation expected)	20.80%	
	c	Already in place or < 3 months required to establish	25.00%	
3	**Year 1 Predicted Bed Day Savings**			
	a	< 1000 bed days	0.00%	
	b	1000-2500 bed days	12.50%	
	c	>2500 bed days	16.70%	
4	**Transferability - Extension of the concept of this initiative to other types of patients**			
	a	None apparent	0.00%	
	b	Yes	8.30%	
5	**Scalability - Extension of this initiative to more of the same type of patients**			
	a	Year 1 > 80% of potential	0.00%	
	b	Year 1 - 20% to 80% of potential	4.20%	
	c	Year 1 - <20% of potential	8.30%	

Teams were also asked to include more budgetary information to cover the costs associated with introducing any successful change. Campaign sponsors still wanted to create a culture where Collaborative teams could be formed, and then stopped if they were not seeing the changes predicted occur, but they did want to ensure that services had the potential to pick up any successful change and implement it into their daily practice. The development of skills to think in a whole-of-organisation way was remarked upon:

> *A lot of people saw it as a mechanism to push their priority; it was really helpful for them in terms of working out how their priority fit into the organisation's priorities …and I think that a lot of people on the "shop floor" do not get the skills and the opportunity to think that way. …A lot of teams formed really good arguments for that. (Campaign sponsor)*

After the end of first Campaign , a capability had been built in how the IHI Breakthrough Series worked, which meant in the second Campaign more emphasis was put on doing the PDSA cycles, and ensuring large topics were broken down into manageable aims.

Having observed the impact of different team combinations in the first Campaign, in the second Beyond 20,000 Days Campaign more advice was given by the Campaign sponsors on team composition:

> *We have made sure that the team established has 2 elements; (1) the expert team that provides the governance to make sure that it is clinically safe and appropriate, and (2) working group people who are able to meet weekly or fortnightly to actually do the testing and the analysis. (Campaign sponsors)*

Generic change management experiences regularly describe an arc from initial pessimism through to broader acceptance of change. Quality improvement programmes are no different from other programmes seeking to achieve change in organisations [6], so it is not surprising to see this arc also being referred to in some of the interviews, for example;

> *When the Campaign first started there was a lot of noise…we do not get this now as it has become an integrated part of Counties. (Campaign sponsors)*

> *…pessimism this was just the new thing [was one of our greatest challenges]. We overcame this by being able to produce results and demonstrating the evidence..that was key for us. (Campaign sponsors)*

Campaign outcomes: thinking about the exit plan

The outcomes of the Campaign were measured in three different ways. The first and most obvious was the Campaign target of 20,000 bed days saved; a target based on a predicted 5.5 percent annual increase in bed days at CMDHB starting from a baseline in July 2011. The second comprised a family of measures in an overall Campaign Dashboard which aimed to identify the type of permanent change occurring throughout the system. Finally Collaborative team level dashboards gathered data to demonstrate the efficacy or not of each particular change idea. The ways the Campaign assessed whether it was making a

difference is discussed in Section Five. This section explores the issues that arose when handing over work back to the main service units.

Many were of the opinion, looking back eight months after the first Campaign had completed, that the most significant challenge was how to transition the Collaborative teams into the wider business. Seed funding has created "a set of staff that are used to delivering something and patients used to receiving it …. there is an expectation of [ongoing] funding". Campaign sponsors noted they had reached a point where they wanted to hand projects back, to either be implemented in other wards (for example increased identification of Delirium through application of the CAM tool) or to extend the reach of services (for example, increased pulmonary rehabilitation places in the community). However, working out how to resource these ideas within baselines was often a challenge for those managers expected to take up the new idea. Collaborative team members were experiencing first-hand frustrations:

> *So you developed this great team who were chatting to each other, and developing the group philosophy and then you are going to the managers and they actually have no way of shifting the resource. (Collaborative team leader)*

> *We need to get better a predicting what is going to happen at the end when the resources and attention goes [sic]…can be quite naïve about this but now there is a realism needed that these are financially constrained environments and if something is proved to work it needs to replace something else. It is not an environment where you just put money into every good idea. (Collaborative team leader)*

The lesson to "always have the end in mind" was clearly an ongoing issue as the work of the first Campaign reached various stages of expecting to be handed over to others to spread. Underneath this issue was the deeper tension of how resources are shifted both within the hospital and between primary and secondary care. Integration of primary and secondary care, in particular, was described as a laudable goal, but also one that can look threatening when hospital specialists start to see their funding shift to primary care.

Summary

The 20,000 Days Campaign was "pushing on an open door" as the CMDHB culture was receptive and responsive to change, the broader policy settings reinforced the priority that needed to be given to the Campaign's goal, and local evidence of the need to do things differently was widely available.

It is common for these types of change initiatives to be perceived by clinical and other front-line staff as an unnecessary distraction from the task of addressing health needs and providing quality care [25], so the early focus on working with the willing, though it had a few downsides, was an important part of building a foundation of achievement that would encourage others to participate in further phases.

The first Campaign demonstrated the utility of the IHI model for improvement and Breakthrough Series. When it came to picking the next set of collaborative teams for the second Beyond 20,000 days Campaign, a Dragons' Den was used to both spot the type of change idea that had the most potential to succeed, and ensure more direct activity integrating primary and secondary services.

While a strong narrative of success was built around achieving the Campaign target in the first Campaign, as further Campaigns were rolled out, deeper issues arose with respect to sustaining the change and absorbing the changes back into business as usual.

Section Four: Questionnaire Results

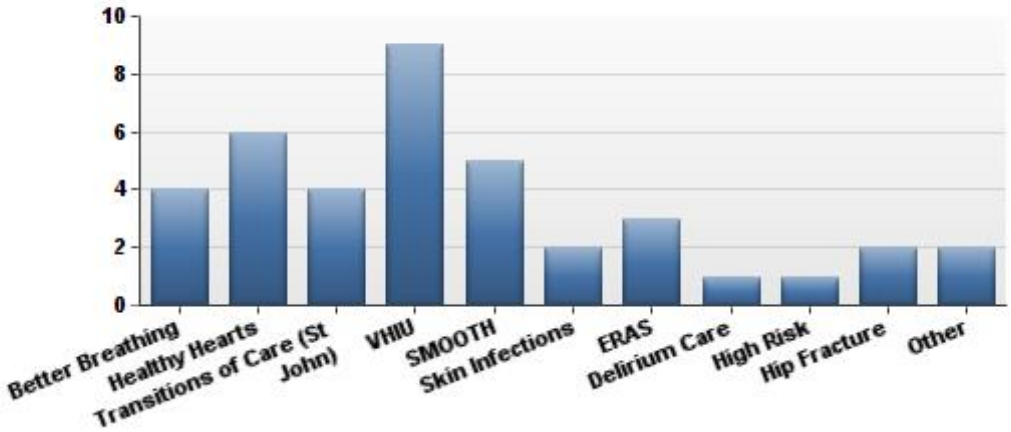
Introduction

A questionnaire was designed to assess the overall helpfulness of 6 specific features of the Campaign's design and implementation. These six features were distilled from other scholarship evaluating IHI Breakthrough Series Collaboratives.

The questionnaire was emailed to all those who participated in the Campaign (n=160). Ten emails were returned, leaving 150 potential responders. This section presents the results from those who responded (n=39). Discussions with Campaign leaders indicated that a potential pool of active Campaign participants was likely to be 80 rather than the 160 emailed, so 39 replies could be viewed as more representative than initial response percentage of 26 percent suggests, i.e. 37/80 = 46%. Self-identification shows that 37 of our 39 respondents were members of Campaign teams .

Virtually all questions were completed by all respondents, and every Collaborative team was represented, although in some case by only one or two respondents (Figure One). There was no obvious bias or evidence of careless completion. Due to the small size of the population, the analysis was confined to frequency counts and percentages. The Campaign project leaders noted that that a number of teams had members who had changed roles, or left the organisation after the Campaign had finished, so some teams were considerably smaller by the time the questionnaire was distributed.

Figure One: Collaborative teams represented



Those that replied were mainly team members (54%), while team leaders made up 19 per cent of the responses and clinical expert advisers another 19 per cent. The remaining 8 percent were project managers or other expert advisers.

The current primary profession of those that responded were clinical (39%), health care manager (21%), allied health professional (16%) or other health professionals such as nurses, pharmacists or administrators (24%).

Overall, respondents reported they found the Campaign useful, learned new techniques for creating change and believed it was effective. The data show that from the point of view of the team members who responded, the great majority found the process useful, and only three participants (7%) left comments suggesting that they were actively dissatisfied with some aspects of the Campaign.

The Campaign as a whole

When asked to reflect on the effectiveness of the Campaign as a whole (Table One) 80 per cent of respondents agreed or strongly agreed that the Campaign made a contribution to building a culture of quality improvement. Seventy eight percent agreed that it was the best thing CMDHB had done in a long time, and 71 per cent said it was a huge success.

The area respondents were most ambivalent about concerned the Campaigns link with reducing demand on beds. In response to a statement that the Campaign had only a weak link with reducing demand, 55 per cent disagreed, 29 percent were neutral and 16 percent agreed.

Statements suggesting negative perceptions (Questions 1,6,2,and 8) all came in with a mean value of more than 3, i.e. Disagree or Strongly Disagree, particularly Q8 'didn't achieve much' which was soundly rejected.

Table One: Effectiveness of the Campaign

#	**Overall, in the broader picture, I think this whole Campaign....**	Strongly Agree	Agree	Neutral	Dis-agree	Strongly Disagree	Mean
7	actually did contribute to building a culture of quality improvement	14	16	4	4	0	1.95
11	had a well recognised brand	11	19	5	2	1	2.03
5	covered the right sort of topics	5	27	4	1	1	2.11
10	was the best thing we have done in a long time to make changes	10	15	10	1	2	2.21
3	was a huge success	9	18	6	3	2	2.24
9	did not involve enough clinicians	1	9	8	13	7	3.42
4	had only a weak link with reducing demand on beds	1	5	11	16	5	3.50
1	was never going to work	2	2	2	23	9	3.92
6	was just a fashion	0	3	5	20	10	3.97
2	was not the right fit for my team's area of interest	0	3	2	23	10	4.05
8	didn't achieve much	1	2	1	20	14	4.16

Team members were asked about the longer term effects of the Campaign (Table Two). Each question measured what they thought would be the long term effects according to whether they would fall short or far exceed the expectations of the Campaign planners.

Overall, the feedback was positive (>2.5 with 5 being far exceeds expectations), but with a spread of scores around the central value showing that opinion was divided.

The best results were seen in long term improvements in patient care and the ability to undertake more quality improvements. Fewer lasting improvements were thought to be likely for the extent and duration of the changes, though there was still a majority who felt that they exceeded or equalled expectations.

Table Two: Expectations of long term effects

What do you think the outcome of the Campaign will be?	Far short	Short	Equals Expectations	Exceeds	Far exceeds	Mean
Change to patients' experiences of care	2	1	12	17	6	3.63
Change in the overall ability to undertake quality improvement	1	2	12	18	5	3.63
Change to the relationship between hospital and community care	3	9	13	9	4	3.05
Extent of the changes	2	7	17	10	2	3.08
Duration of the changes	5	4	20	8	1	2.89

Specific aspects of the Campaign

Six specific features of the Campaign were explored in the questionnaire and are discussed in turn in the next sections. These six features were drawn from two psychometrically tested instruments [19 21]which were developed to cover the many components that make up a Quality Improvement initiative. Annex Three displays how the instruments were applied and adapted.

The components identified by these instruments, line up with the features CMDHB identified at the end of the Campaign as significant contributors to what worked well, in the following ways:

7. Collaborative team environment (i.e the way the team worked). *Lines up with CMDHB emphasis on the benefits of multi-professional teams working across the health sector.*

8. Improvement tools (particularly the project charters, run charts and use of measurement as captured in the Model for Improvement and PDSA cycles). *Lines up with CMDHB recognition of the value of the Model for Improvement.*

9. Resources and information (for example access to training , the right data and financial support).

10. The structured method (particularly the IHI Breakthrough Series structure of learning sessions and action periods). *Lines up with CMDHB acknowledgement of the importance of having a pre-defined series of milestones and activities.*

11. Support from the experts. *Lines up with CMDHB emphais on the importance of leadership and expert support.*

12. The organisation and the value placed on quality improvement generally. *Lines up with CMDHB focus on the benefit of an aligning around a common goal.*

Collaborative team environment

Team members acknowledged that they were participating fully (Table Three Q1-3), but the answers to items 4 - 6 suggest that they also felt that their participation could have been better organised.

Table Three: Participation in Collaborative teams

In the collaborative team I was in, I felt that...	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	**Mean**
1. you got to participate in decision making	17	19	0	3	0	1.72
2. everyone was listened to	11	24	3	1	0	1.85
3. every opinion was at least considered	12	21	6	0	0	1.85

4. roles were clearly defined	9	18	7	4	1	2.23
5. participation was well organized	5	25	4	5	0	2.23
6. participation was carefully prepared	5	23	6	5	0	2.28

Improvement tools

The model for improvement expects team to agree their own goals and test their theory of change through PDSA cycles. The results in Table Four suggest that the actual work of the teams was getting done, with the majority of team members stating that they used the PDSA tools, but there was a bit more of a spread of opinions as to whether their team was

Table Four: Applying the PDSA cycles

In the collaborative team I was in, I felt that...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
PDSA cycles were applied frequently	14	17	5	3	0	1.92
the right leadership skills emerged	11	17	9	1	1	2.08

effectively led.

The Model for Improvement expects teams to set their own goals. The experience was that participants set their own goals, and tracked progress towards them, but agreement on whether the goals were easily measurable was less certain (Q.4 Table Five).

Table Five: Goal setting in Collaborative teams

#	**I think that in my collaborative team we**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
5	agreed our own goals	12	21	0	5	1	2,03
2	were focused on achieving goals	13	18	2	5	1	2.05
3	tracked progress continually	10	22	2	5	0	2.05
1	had clearly defined goals	11	20	4	4	2	2.13
4	used easily measurable goals	4	26	2	7	0	2.31

Looking in depth at how the goals were being monitored, participants were using the measuring tools, and around 80 per cent Agreed or Strongly Agreed on questions 9,8 and 6; and 75 per cent using the measurements to track progress. However, Q10 in Table Six below shows that the run charts were not used as confidently as they might have been, nor did as many feel that the changes made were being properly measured.

Table Six: Progress measurement in Collaborative teams

#	**I think that in my collaborative team we**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
9	learned from the tests that failed	17	15	4	4	1	1.90
8	used measurement to track progress	13	20	2	4	0	1.92
6	used measurements to plan changes	12	19	3	5	0	2.03
3	tracked progress continually	10	22	2	5	0	2.05
7	used measurements to test changes	13	17	2	7	0	2.08
10	used run charts confidently	9	15	3	11	1	2.49

Resources and Information

Being backed with sufficient resources and information is a fairly obvious contributor to a successful outcome. Participants believed they had enough resources in general, though perhaps not as much as they would have liked (Table Seven). The majority agreed that they had the right training, but there fewer who thought they had the right data, and fewer still who felt they had enough time or money. Nobody thought they had all the resources they needed (Q6).

Table Seven: Resources available to the Collaborative teams

#	**In my view, my collaborative team had...**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
1	the right training to identify opportunities	7	25	4	3	0	2.08
2	the right training to act on opportunities	7	23	6	3	0	2.13
5	access to the right data	3	25	6	3	2	2.38
4	adequate financial support	4	14	12	7	2	2.72
6	all the resources we needed	0	18	9	11	1	2.87
3	enough time	4	7	17	11	0	2.90

The Structured Method

The IHI Breakthrough Series provides an ongoing series of activities to support the Collaborative teams in their use of the Model for Improvement and encourage collaboration [21] between the teams. The questions below were designed to assess how well the learning sessions (Table Eight) and action periods in between (Table Nine) helped the teams to achieve their goals. In general, the respondents reported that they did get useful skills that were applied to practical purposes. There were still good, but slightly less emphatic, results from questions probing the extent of sharing and reflecting on what was learned during the face to face learning sessions.

Table Eight: Learning Sessions

#	**I felt that in the learning sessions my collaborative team...**	Strongly Agree	Agree	Neutral	Dis-agree	Strongly Disagree	Mean
1	gained useful knowledge and skills	12	23	2	1	1	1.87
2	focused on practical application	11	24	1	2	1	1.92
6	were given useful information	10	23	5	1	0	1.92
3	developed skills in planning changes	13	20	2	3	1	1.95
5	usefully reflected on our results	12	21	3	2	1	1.95
4	learned from other team's progress reports	11	20	5	1	1	1.97
7	exchanged information outside the sessions	10	22	5	1	1	2.00

When asked what they did towards achieving their goals between the face to face learning sessions, the responses demonstrate that the PDSA tool was used extensively, some teams refined their goals, but participants generally were less sure about the success of information exchange with other teams.

Table Nine: Action Periods

#	**I felt that in between the learning sessions we**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
1	made progress in applying PDSA cycles	14	17	5	2	1	1.95
3	refined our goals	8	23	7	0	1	2.05
2	exchanged information with other teams	5	11	17	4	2	2.67

Support from the experts.

The input of experts was an essential part of the Campaign. When asked about the type of support provided by the experts, there was close agreement that practical and scientific support was available, but there was less agreement that advice on how to improve the care

process was available. This was only slightly less obvious, as shown by the increasing means (Table Ten).

Table Ten: Support from Experts

#	**In my view the experts (for example Improvement Advisors, Clinical Leads) ...**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
1	contributed practical experience	6	26	6	1	0	2.05
2	contributed scientific knowledge	6	25	7	0	1	2.10
4	gave good advice on how to achieve our goals	6	23	8	2	0	2.15
3	were experienced in improving care processes	6	21	11	0	1	2.21

The Organisational support

The MUSIQ instrument pays particular attention to the ways in which the wider organisational context can help or hinder quality improvement projects [18]. Questions were asked to gauge participants' views on aspects of the organisational culture. Most agreed that CMDHB management were interested and that there is a genuine desire to integrate quality improvements, but there was slightly less certainty of executives getting directly involved or turning the Campaign goals into organisational policy. However, the question of 'little value is placed on quality improvements' was firmly rejected by all except two individuals (Table Eleven).

Table Eleven: Organisational support for quality improvement

#	**In my opinion, in my organisation...**	Strongly Agree	Agree	Neutral	Dis-agree	Strongly Disagree	Mean
2	the Campaign goal was discussed widely	10	21	3	5	0	2.08
4	management followed progress closely	6	25	3	4	0	2.13
6	quality improvement is integrated into everything	10	19	5	5	0	2.13
5	executives get directly involved in quality improvements	4	20	10	4	0	2.37
3	goals were made into organisational policy	7	16	12	2	2	2.38
1	little value is placed on quality improvement	1	1	2	23	12	4.13

Open Ended Questions

The survey asked four open ended questions.

How did the Improvement Processes used in this Campaign compare with other improvement projects you have been in?

Three of the respondents said this was their first project and had nothing to compare with. Other comments (32) focussed on various aspects of the IHI methodology. The majority (14) gave unqualified support for the way the Campaign was conducted. Of the remaining responses, collaboration was specifically mentioned by five respondents. Three praised the IHI methodology for enabling it, but two told of 'disconnect between the team members', and needing 'several attempts' to engage management. Three said they felt that in their teams the goals were defined too early and one said the goal had been decided 'before the launch'. Six felt that the methodology was too focused on the process, ' the process became more important than the goal' and not on the outcome ' no interest in the patient's perspective'. One felt that the methodology had 'clumsy and poorly defined processes'.

Apart from what was planned, were there any unexpected outcomes from the Campaign?

There were 26 comments from 25 individuals for this question. Most were about benefits of being part of the Campaign. Four noted increased collaboration within the team's area, and four were about how relationships with doctors and pharmacists and others had improved 'networking opportunities across both the hospital and into the community'.

Four mentioned that they obtained increased skills and training, e.g. 'importance of gathering, understanding and monitoring data', but one said the unexpected finding was how poor the data they started with was. Four people commented on the ongoing effects of the campaign: three of the four positively, e.g. 'spread the IHI methodology which is now applied widely outside of the 20,000 days campaign'; and one negatively saying that the campaign had raised expectations that cannot be now be meet due to lack of funding. Another respondent said that the unexpected benefit was 'patients' enjoyment from all additional services'.

Six people said that the strongest outcome was a change in culture ' made us look at existing programmes and how they could be improved with this new knowledge' especially as the implementation in some teams was hampered by insisting on old ways of doing things i.e. 'a lack of full commitment…several resorted to old practice'. But one respondent stated ' I have developed a real passion for quality improvement'. These comments suggest that the Campaign has definitely planted some long lasting seeds.

What do you think you learned from being in the collaborative team?

The analysis of the responses (46) showed that 22 of the participants felt that they had learned something lasting from being in the team. Some things were personal, some were skills based and some were about the process.

The most comments (24) were about the process of change management 'importance of, and difficulty of, culture change', and within this, five comments were specifically about using the methodology: 'the importance of mechanisms in place to sustain a change'. Some reflected on the difficulties of change 'use testing to try out ideas' and 'it's OK to fail. Just try again'. The most commented (9) aspects about personal experience were about their appreciation of the role of collaboration and teamwork 'all members need to feel valued' and 'smaller teams work best'. Three people commented on the need for goals including 'the difficulty in keeping focus on the goal' and the need for early planning before starting. Personal development and skills acquisition (10) were commonly mentioned. Many were very enthusiastic. i.e. 'a fabulous learning experience for myself', 'great vehicle for personal and professional development'. Others commented on how what they had learned had become part of their normal routine: comments such as 'The continuous quality cycles became embedded in our practice' and 'I have brought PDSA cycles into quality improvement for my everyday practice' were typical.

Overall, being in the campaign was a career changing experience and highlighted both the good and bad aspects of making change happen.

If you were in charge next time, what would you do differently?

There were 25 responses to this question with some repeating themes. The two commonest themes concerned resources and data collection. Eight cited resources, not so much in the lack of current resources, although that was mentioned, but in the sense of sustainable funding needed to continue the Campaign.

The other main lesson learned was about the importance of data collection, data analysis and data quality as summed up below.

> *Perhaps start with more of an understanding about the importance of baseline measures.*
>
> and
>
> *We collected so much data and spent a lot of time collecting and analysing it. I think if I was the lead next time I would utilise the data more to enable/ensure change happened.*

Three people identified training as the key factor as they experienced problems at learning sessions understanding driver diagrams, or found they were caught doing “PDSA cycles retrospectively so that they could be shown at learning sessions”.

One respondent offered an idea for improvement;

> *The learning sessions could have been truncated to make full attendance more feasible for busy clinicians, it was very good to see and learn from how the other teams were approaching quality improvement.*

The importance of getting clinicians on board from the start, and making sure they were part of the solution was also flagged by others:

> *We pulled some complex reorganisation together pretty well because we were all used to working together, there is no way this would have worked had it been pushed on the clinical team without their involvement.*

Two thought that the clinicians needed to be involved more, and sooner. They felt that the needs of the patients were getting left out as the 'project managers' went off on their own 'it often felt like it was a group of project staff doing their own goals isolated from the rest of the services'.

Summary

In the preceding section, the most effective ways by which the Campaign achieved its outcomes were presented from the perspectives of those in leadership roles in the Campaign. When these perspectives are compared with those doing the work of change – i.e the members of Collaborative teams – a convergence of views is evident, with a few nuanced differences based on the hands-on experience of applying the Campaign's new methods and processes.

The success of the Campaign in building a culture of quality improvement was acknowledged by all. The Campaign had a well-recognised brand, which covered the right sort of topics and made sense as part of the wide CMDHB story of change.

For Campaign participants, changes to the patient experience, and the increased capacity to undertake quality improvement, exceeded their initial expectation of what was possible on top of the expectation that greater integration between primary and secondary care would result. This view is illustrated by the following comments when respondents took the opportunity to comment any unexpected outcomes from the Campaign:

> *I think it contributed hugely to building a culture of quality improvement and spread the IHI methodology which is now applied widely outside of the 20,000 days Campaign.*
>
> *[an unexpected outcome was] Human behaviour and integrating a culture of quality improvement to engage staff rather than just complaining about the status quo.*

Within the Campaign, the application of the Model for Improvement, as a way of testing change ideas in small scale measurement cycles, worked well. Participants reported applying PDSA cycles, agreeing goals and learning from tests that failed. The response to statements concerning whether they were always led and prepared as strongly as possible indicated a slightly lower level of confidence. This could well reflect the "learning as you go"

style of the first Campaign as discussed earlier (see Section Three). One respondent touched on this in the open ended part of the questionnaire noting "the Campaign team were learning as they went as well, as were the improvement advisors and project managers".

Campaign participants were also more tentative about how well they measured progress, suggesting run charts were not used as confidently as they would have liked. The following section looks in greater depth at the way measurement was used to track progress within the Collaborative teams. The importance of establishing meaningful and accurate electronic data collection early was a common theme when participants were asked to comment on what could be done differently. Another common theme reflecting on what was needed to improve, was to make sure funding was in place for successful initiatives.

Overall, the questionnaire results reinforce the Campaign leaders' views of the features which helped the Campaign succeed. All of the means for the questionnaire answers lie between 1.7 and 2.1 and the overall positive nature of the responses suggest there was no feature of the Campaign that worked noticeably badly. Participants responded well to the new tools and processes, but were also realistic about how hard it could be at times to make these work. Nevertheless the evidence was that they were galvanised enough by the broader aim to want keep trying.

Section Five: Dashboard analysis

A secondary analysis of the Collaborative team dashboards was undertaken in order to understand more about how the Campaign met its objective of giving back to the community 20,000 healthy and well days. This section presents the durable lessons from this independent assessment of the data assembled by the Collaborative teams, combined with insights from interviews with Campaign sponsors, Collaborative team leaders and quality improvement advisers.

The focus was on two questions:

1. How well was the phenomenon of what drives hospital demand captured in the measures used in the high level dashboard, and what would improve them?

2. What would most improve the team level dashboards; were any obvious indicators missed?

The dashboards were reviewed with an understanding that the aim of measurement in improvement science is for learning, not to make academic judgements. Nevertheless, as this section discusses, the measurement work of the Collaborative teams was a point of vulnerability, due to difficulties in finding, interpreting and presenting data in meaningful ways. This chapter highlights the importance for future Campaigns of ensuring Collaborative teams are supported with a small number of realistic and feasible outcome indicators, and a wide variety of process indictors.

Each of the areas of measurement in the Campaign – the Campaign target, the overall Campaign Dashboard and the Collaborative team Dashboards – are considered in turn below.

The Campaign Target

The Campaign target of giving back to the Community 20,000 well and healthy days by 1st July 2013 was derived from a CMDHB bed model that estimated the number of beds required in Middlemore Hospital to meet the peak hospital bed demand in a year (allowing for only three hospital full days in a year). As reported in internal measurement papers[8] (see Table Twelve below) 66 extra beds were needed by 1 July 2013 to reduce the number of full hospital days to three per year. This equated to 4,500 bed days needing to be averted immediately, with another 7,800 beds by 2012, and a further 8,000 bed days, resulting in the total bed days to be prevented by 1 July 2013 estimated at 20,300 bed days – a figure which represented 6 percent of all available bed days.

[8] CMDHB bed model – 2009/10 base year (01/09/2011)

Table Twelve: Estimated number of bed day savings needed in a year to reduce the number of full hospital days to 3 per year

Timeline	1/07/11	1/07/12	1/07/13	1/07/14	1/07/15	1/07/16
Bed day savings needed immediately	4,500					
Bed day savings from demographic growth		4,900	5,000	4,300	4,500	5,100
Bed day savings from non-demographic growth		2,900	3,000	3,000	3,000	3,000

After tracking the difference between projected demand and actual use at the end of the Campaign, it was reported that 23,060 bed days were given back to the people of Counties Manukau.

The interviews highlighted how some of the early debates agreeing what numbers would be used was one of the biggest challenges as "everyone wants to talk about and struggle and fight over the numbers".

One early CMDHB internal paper highlighted the ways this struggle was played out as caution was expressed in interpreting the source of any difference between the actual and predicted bed days as:

> *The difference can be explained by a number of factors. These include physical capacity constraints, change in weather patterns, the lack of infectious disease out breaks, the change in elective volumes or inter-district flows or a number of new and existing interventions that aim to prevent disease or provide better health care for patients which include the 20,000 bed day campaign.*

Furthermore,

> *… this indicator only described the trends in bed day utilisation, it cannot tell whether the continued growth in hospitalisation was clinically appropriate or not. A series of other indicators are needed to determine the latter.*

The value of the days saved target was seen by those leading the Campaign as providing a focus and end point, although streamlining patients' journeys and building the overall capability for change in the organisation, were often singled out as of greater importance than the exact 20,000 days by both Campaign sponsors and Collaborative team leaders. For example:

> *We were interested in saving bed days but the bottom line was that we were trying to get everybody working in the same way and understanding and appreciating our role in the system. The system understanding is important and a way we will judge success longer term. (Campaign sponsor)*

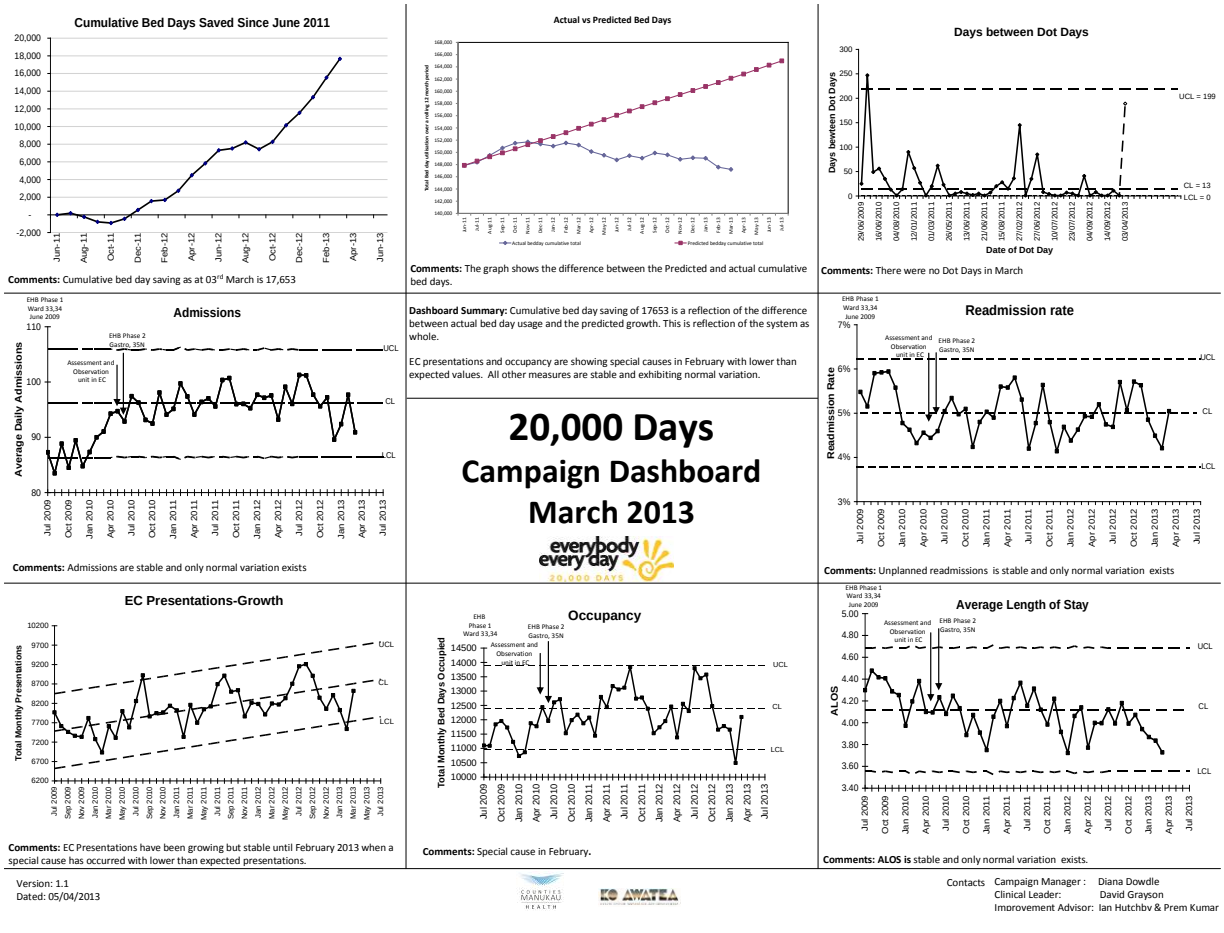
> *Marketing around [giving back 20,000 days] nudged people's thinking. It moved them away from the bed and the money. People embraced it a lot more ..because it was about keeping people well and about streamlining their care, keeping them out*

of hospital and keeping them home, rather than what was perceived as black and white cost saving Campaign. (Collaborative team leader)

The Campaign Dashboard

In recognition of the number of factors likely to influence the bed days target, an overall Campaign Dashboard was produced to track a range of measures that would help identify whether permanent change was occurring throughout the system. These other measures included; dot days (days when Middlemore hospital was full), average length of stay, admissions and readmission rates, occupancy, emergency care presentations, as well as the difference between predicted and actual cumulative bed days.

An example is provided below of what the overall system Dashboard contained.



Campaign leaders made considerable efforts to point out that other work (for example work reducing turn-around time in the Emergency Department) was also contributing to the overall Campaign goal, in order to provide an assurance that the work of the Collaborative teams was not duplicating other work. The flipside of this message was that it then became even harder to link the results seen in the Campaign dashboard directly to the work of the Collaborative teams. Equally, if a link was claimed, as one interviewee mused, what did it

mean when a number of unexpected dot days occurred; did that mean the Campaign had or was failing, given credit is claimed for less dot days during the first Campaign? Another interviewee described the complexities of thinking about cause and effect in the Campaign as follows:

> *At the system level attribution is not easy. Looking at the [overall Campaign] dashboard from the start of the Campaign there is statistical change in the average length of stay, occupancy during the first Campaign was for the first time very different… there are multiple theories why it is happening… for example seasonal changes were one of them, but the system is showing evidence of a change.*

At the heart of this dilemma is understanding how a system operates over time in order to recognise an inflexion point that tells you permanent change is occurring, and conversely when statistical variation is to be expected. The externally based improvement adviser, who had a major influence in shaping the Campaign dashboard, wanted high level metrics to build this understanding, and recognised that the creation of an overall Campaign dashboard represented the first time CMDHB had taken a single look into the system as a whole. It was suggested that one of the unexpected outcomes of the first Campaign was creating an appetite for looking at statistical data on a regular basis, and prompting more discussion on what could be done to make the greatest difference across the system;

> *It started a measurement culture, there were a lot of graphs generated in the hospital, we tried to piece together a story…it is not just a graph, it is a story of the system development.*

An appetite that might also be spurred by an expectation from the Minister of Health that DHBs will produce a dashboard of key quality and safety measures to regularly monitor performance and produce quality accounts in 2013.

The Collaborative Team Dashboards

The Model for Improvement provides a set of expectations on how measurement is needed to track a Collaborative team's progress towards their aim statement; a statement of what was expected to happen, to whom, by how much, and when. The Collaborative teams were advised[9] that a balanced set of a few key indicators (3-8) was desirable, as knowing if a change is an improvement usually requires more than one measure. They were also advised to balance process and outcome indicators.

Identifying indicators that made sense for the wide variety of activities encompassed by the 20,000 days Campaign was far more difficult than IHI guidance on the Model for Improvement implies. Other Campaigns which focused on a clinical rather than overall

[9] Sourced from Powerpoints used in Learning sessions and accessed through Ko Awatea website

healthcare management outcome, such as the Target CLAB Campaign, had the benefit of being able to combine collective wisdom around measurement. In the Target CLAB zero Campaign, a Data dictionary was developed to ensure that all DHBs were consistently identifying and measuring their CLAB rates.

In the 20,000 Days Campaign, Collaborative teams developed an initial list of indicators through an interplay between the improvement advisers and the team members. These were assembled into team dashboards to demonstrate the gains made at key points in the Campaign.

We undertook a secondary analysis of the results presented in these dashboards; eight dashboards were reviewed as these had the most fulsome information. The eight Dashboards were often busy to the eye, involving up to nine small graphs per dashboard, with no accompanying narrative of what was being covered. We therefore collected further information from Improvement Advisers in order to enable the indicators in the Dashboards to be assessed against the following criteria. Our conclusions are presented under each of these criteria:

- **How consistently were the indicators used?**

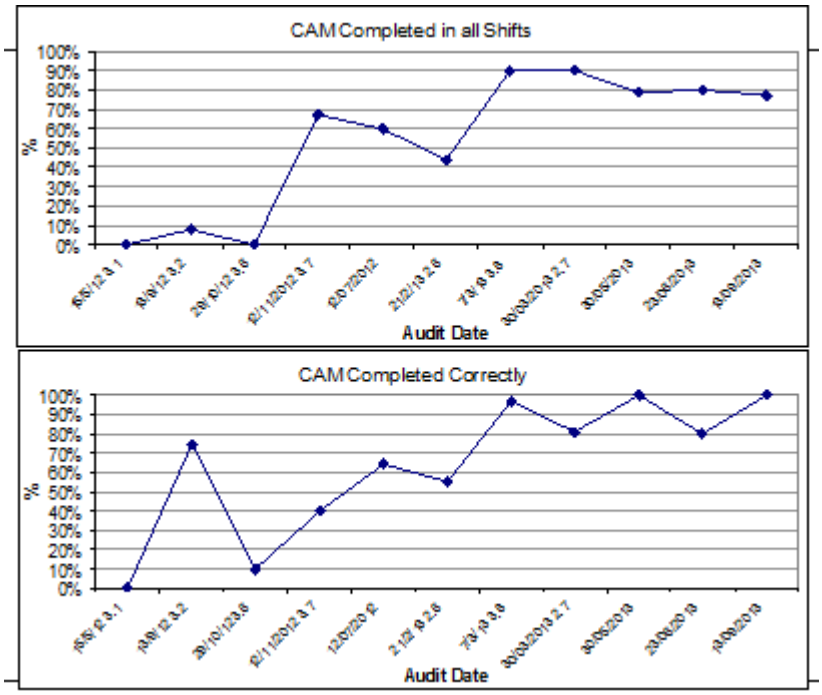
Of the eight Collaborative teams for which we could find good evidence, half of the planned indicators were measured right up until the end of the Campaign. In other words the teams listed the indicators they would be tracking at the beginning of the Campaign, but only 51 per cent were actually assessed at a certain point during the Campaign. The Collaborative team that continued with the least indicators ended up following 25% of those planned, while one team continued with 87.5% of those originally planned. The total number of indicators for these eight Collaboratives was 49 indicators (6.1 average). The reasons indicators were abandoned included: small numbers which meant it was difficult to see an effect on planned indicators, the targets not being achievable by the team alone, and difficulties in accessing data.

- **How clearly were the indicators presented?**

Busy dashboards are difficult to interpret for those not involved in the project. Out of 49 indicators defined by eight teams, only one third (30.6%) presented clear measures of the indicator. Graphs were often missing a descriptive title and labelling of the axis. Overall there was an over dependence on graphs for data analysis (particularly control graphs) without a value assigned to the indictors. In some dashboards simpler graphics were used to show data in a way that responds well to the expected outcome. For example the graphic overleaf shows how increased application of the Confusion Assessment Measure

tool was tracked through the Delirium Collaborative's work to identify delirium during the first 5 days of admission for elderly patients by scoring every shift.

The "How to guides" now being produced provide more narrative around the indicators used to track progress. These may provide a more accessible way to communicate with audiences that have not being involved in the teams. A full set of these was not available at the time of the evaluation for review.



- **How well were the indicators interpreted?**

Only one third of the 49 original indicators (measures of expected outcomes) provided enough information to evaluate the achievement of the indicator; half of those 49 indicators were abandoned (and not replaced) at different stages of the projects or not measured. Some indicators referred to "reducing number of ED presentations" which would have required an intervention out of scope of the Collaboratives. Some indicators wanted "to improve" or "to integrate" care; a very general definition without any specification of what was meant by improvement. Looking across at what the Collaborative teams achieved, only 2-3 of them could show some potential causality between what they did and beds saved.

Some high level indicators like "days between Dot days" could have been replaced by others based on existing evidence such as "% days where bed occupancy is higher than 85%". Basic existing rules regarding design of indicators (measures) should be followed, such as checking their feasibility and data availability or possibilities of getting it if not routinely collected.

Examples were found where baselines were used which after further inspection could be seen to be inappropriate. In one case, 3 months baseline data was used for a Collaborative team indicator, yet as there is a high variability from month to month the baseline could have potentially been very different depending on which period was used.

- **Where any obvious indicators missing?**

None of the Collaborative teams had an ethnicity focus incorporated into their data analysis and interpretation. As an example of how an ethnicity focus on data analysis could be used, a quick analysis of the ethnicity data recorded for the 1,155 people referred to pulmonary rehabilitation services in the Better Breathing Collaborative was undertaken. This analysis found that Maori and Pacific Peoples were significantly less likely to complete the whole rehabilitation when compared to others, and suggests an important source of information for further investigation.

Another group of indicators that were not consistently measured, despite appearing in most of the aim statements of the Collaborative teams, were those related to patient involvement and patient satisfaction. One team trialled a number of patient satisfaction surveys but never found one that worked to isolate the impact of the team's particular theory of change.

Summary

The phenomenon of what drives hospital demand was captured in the measures used in the overall Campaign dashboard. Attributing the trends observed directly to the work of the Collaborative teams was difficult however, as a number of concurrent initiatives where occurring to reduce hospital demand.

Further work suggested for the second stage of the evaluation would provide a deeper look at what the ongoing measures reveal about how much impact the Campaign had on the system as a whole. Not only would a long time series be available, but trends in integration measures between New Zealand DHBs overall could be assessed.

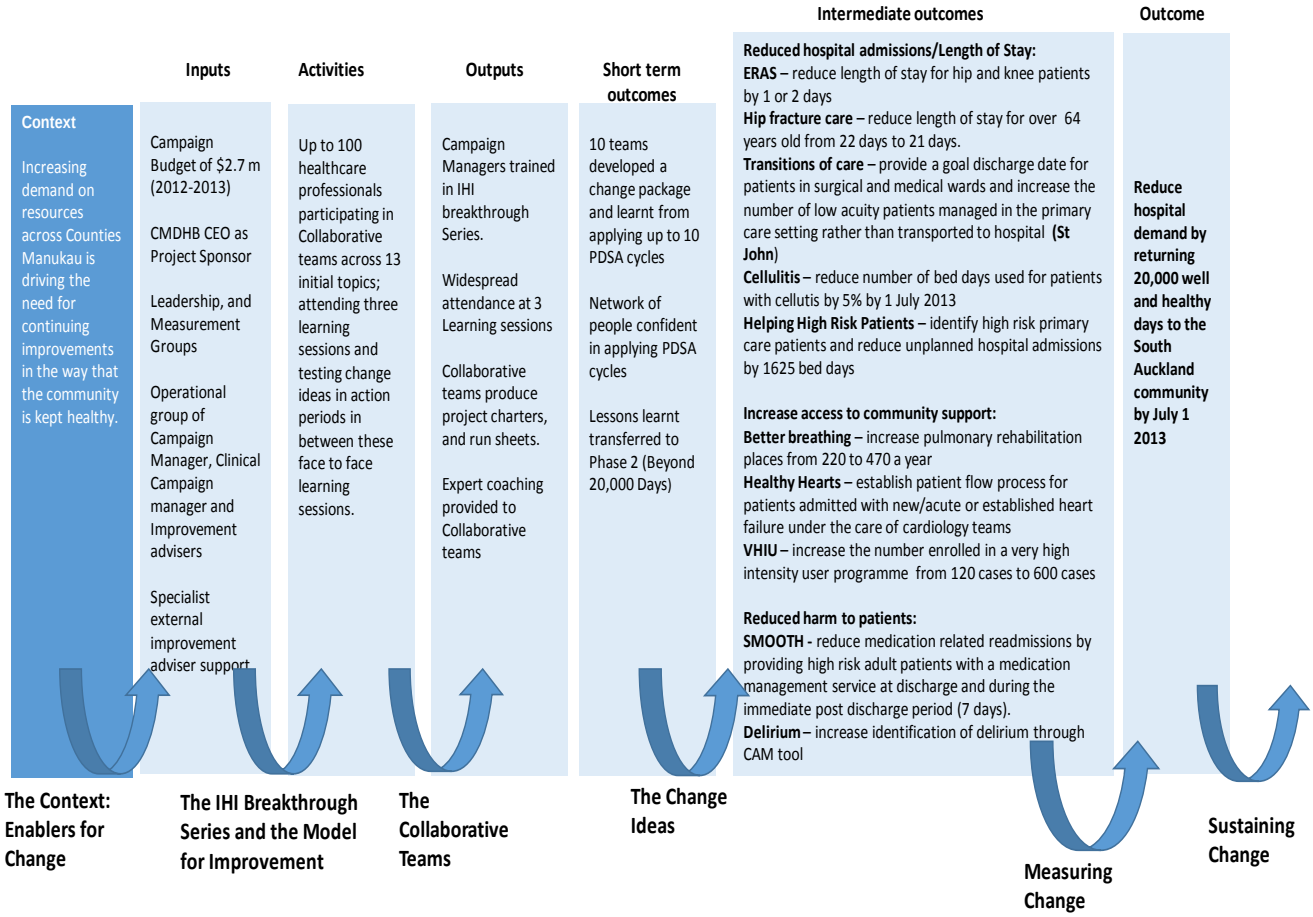
The value of the days saved target was seen by those leading the Campaign as providing a focus and end point, although streamlining patients' journeys and building the overall capability for change in the organisation, were often singled out as of greater importance than the exact 20,000 days by both Campaign and Collaborative team leaders

An assessment of the Collaborative team dashboards found a number of limitations. Despite the amount of data collected by each one of the Collaboratives, it was not displayed in a way that allowed for a straight-forward evaluation by comparing initially defined indicators with quantified outcomes. Some indicators were hard to measure, opportunities

were missed to collect data by ethnicity and the potential variability of indicators being tracked was not always taken into account.

Section Six: Discussion

This evaluation focused on the learning and experiences of Campaign sponsors and participants, as an important source of data for refining future Campaigns. This section uses the logic model introduced on page 18 to shape a discussion of the elements that were particularly important in ensuring the Campaign met its goal.



The Context: Enablers for Change

The environment for the Campaign benefited from a succession of enablers; a culture receptive to change, good strategic alignment between the work of the Campaign and the priority being shown to this work by senior leadership, as well as a preparedness to learn and adapt over the 18 month period of the Campaign and beyond.

Historically, Counties Manukau has been at the forefront of a number of initiatives to improve service delivery [9 26-28]. During the 2000s, 30 separate projects were undertaken

to improve co-ordination and integration of health services, driven by what was described as an "imminent crisis in the provision of healthcare to its population" due to increasing demand for secondary care services [28].

More recently, the desire for more "integrated care" is being matched by policy directions at the national level. The aim of "Better Sooner More Convenient Care" (BSMC) is to provide more primary care closer to home, and has supported the work of the Greater Auckland Integrated Health Network. As well as this regional support, CMDHB has received BSMC funding for its local initiatives to establish new models of integrated healthcare through four local clinical partnerships (Localities).

An international peer review assessment of the CMDHB Localities initiative commented that one of the notable features of CMDHB is the powerful and convincing narrative that has been developed to articulate the need to make changes to the way the organisation delivers care [29]. Unlike Safety Campaigns which often use data to rupture participants' perceptions' or assumptions that there is no problem to be addressed [15], by contrast, the hospital demand problem was already a well-recognised issue at the beginning of the 20,000 Days Campaign. The organisational environment was well primed from both past work on the pressures on bed capacity at Middlemore hospital, and current work persuading staff of the existence of a shared problem around which they could organise.

Inputs and Activities: The IHI Breakthrough series and the Model for Improvement

Traditionally, Campaigns using the IHI Breakthrough series have been applied to a single safety or clinical issue. In the 20,000 Days Campaign a target was adopted that required a wide diversity of Collaborative team topics. A diversity that was a test of the IHI Breakthrough Series.

The IHI approach stood up to this test. The Model for Improvement was regularly identified as a feature that had a significant impact on the overall success of the Campaign, and doing a PDSA was described as part of the culture and language. Breakthrough Series are often chosen as a way to implement quality improvement initiatives because of the benefits gained from the experience of shared learning. In the 20,000 Days Campaign, the shared application of the Model for Improvement was what united the Collaborative teams, rather than a shared topic. Unlike the Target CLAB Campaign where participants learnt about procedures to reduce CLAB infection (the insertion and maintenance bundle[10]) and then went away to apply these procedures in their own Intensive Care Unit settings, the topics in the 20,000 Days Campaign were distinct to each Collaborative team.

[10] A bundle is a set of (usually five) tasks to be carried out which if completed represent best practice in care delivery.

Outputs: the Collaborative Teams

The Campaign succeeded overall, but different Collaborative teams demonstrated different levels of success. This is not particularly surprising. In the 20,000 Days Campaign the diversity of changes being trialled increased the likelihood there would be a diversity of performance, as there was not the same consensus around the scientific evidence on best practice as seen in single topic Campaigns.

The next Campaign was able to draw from the positive momentum created by the Campaign; 78 per cent of questionnaire respondents agreed it was the best thing CMDHB had done in a long time. The process to pick the next set of Collaborative was shaped to overcome some of the issues emerged with teams in the first Campaign. These included ensuring:

- Topics for Collaborative teams were of a size and complexity that required multi-disciplinary teams to come together in regular meetings.
- More budgetary information was included to cover the costs associated with downstream change, as well as the potential size of impact.
- A Dragons' Den process was used to sharpen the alignment of the initial thinking with other organisational priorities.

Short term outcomes: The change ideas

The change ideas being tested by the teams often started with the expectation they were ready to scale up and spread to a larger number of settings. In practice, more work was often needed to determine more about the settings where these ideas would work. Some Collaborative teams found themselves entering into a process of discovery to understand more what was driving the issue. As a consequence the size of impact from the work of the teams often involved smaller numbers than originally expected. Some assumed they were spreading a particular clinical tool or model of care only to find it needed adjusting to fit local circumstances.

An earlier suggestion that a Campaign seeking to improve cooperation between primary and secondary care may struggle because there may not be clear or directly comparable examples of best practice, change concepts, or good research evidence [11] was not borne out. The 20,000 Days Campaign coped with a diversity of change concepts by being prepared to "learn as you go". Substantial learning was generated in the first 20,000 Days campaign to ensure future Collaborative teams would be set up to succeed.

Where a struggle with diversity was evident was in how well the teams' data helped them understand whether they were making a difference or not to achieving the overall goal. The secondary analysis of Collaborative team dashboards found teams varied substantially in the extent to which they established robust data collection systems and how they interpreted this data. While a common theme when evaluating integrated care initiatives often

concerns a lack of data, data collection inconsistencies and incompatible systems [25] here the issue was less about a lack of data, much was often collected, and more about how it was interpreted.

For those Collaborative teams looking to reduce length of stay (eg ERAS, Hip fracture, Transitions of Care Cellulitis) or reduce harm (SMOOTH or Delirium) they could link back to the Campaign's target by predicting the lesser number of days a patient would spend in hospital. For those looking to increase access to care in the community (eg Better Breathing and VHIU) it was much harder to measure the size of those who did not end up presenting at all.

Just because bed days are saved outcomes for patients do not necessarily improve. There was no evidence patient benefits were overlooked in the Campaign, though this is hard to quantify. Box One displays how most of the Collaborative teams were working with a change concept that was as much about improved care in some form, as it was about reducing bed days. A number of Collaborative teams wanted to collect patient satisfaction data but did not end up capturing any specific information. For those that responded to the questionnaire, changes to the patient experience, as well as the increased capacity to undertake quality improvement, exceeded their initial expectations of what was possible.

Medium terms outcomes: Measuring change

Many improvement programmes struggle to identify casual mechanisms as they take place during periods when a trend is already evident in the direction of change being promulgated. Given this "rising tide" it can be difficult to find a specific causal link between what a Campaign has achieved, and improved outcomes occurring as a result of the implementation of best practice across the board. A challenge that has been reported for end of life care, stroke care, coronary balloon angioplasty and multifaceted safety programmes [30]. These Campaigns have been justified as still having an important role raising awareness, increasing the intensity of focus and stimulating managerial support for quality improvement [31 32].

This is evidence that one indicator the Campaign was using in its overall system dashboard was already on a downward trajectory throughout New Zealand. Average Length of Stay (ALOS) between 2000 and 2009 has consistently declined on average. In 2001, the average length of a hospital admission was 3.06 days and this had reduced by roughly 8% to 2.82 days by 2009, i.e. a one percentage point decrease in ALOS per annum.

CMDHB has multiple initiatives in place to reduce unplanned hospital admissions, readmissions and acute length of stay; their 2013/14 annual plan lists such initiatives as, predictive risk identification and care planning for high risk individuals, locality clinical partnerships, and direct primary care access to diagnostics, support and community care.

Precise attribution between these various initiatives is not possible. It can be difficult to unpack the impact of the range of initiatives in place, although a Canterbury District Health

Board review of a similar diversity of initiatives seeking to integrate care concluded that the combined effect of all the initiatives was having a significant impact on the system as a whole [33]. The secondary analysis of the overall Campaign dashboard was not able to reach a definitive conclusion of where the changes were heading. Visually the reviewers for this evaluation noted difficulties in interpreting such a large number of control graphs without an accompanying narrative, or note when different phases of the Campaign started.

While respondents to the questionnaire acknowledged some uncertainty about the Campaign link with reducing demand for beds, they were more confident the Campaign contributed to building a culture of quality improvement. The interviews often expanded on the other benefits of the Campaign, including its links across the system;

> *if you think of the campaign like an octopus it grew its' tentacles into so many things. There is the opportunity of being a lot more responsiveness to the localities, inequalities and the growing trend of chronic disease, …it created a being that could be linked in with so many aspects and dimensions of health care in Counties (Collaborative team leader)*

Long term outcomes: Sustaining change

One of the lessons from other improvement initiatives is that sustainability is threatened when there is an over-reliance on assumptions that interventions will simply diffuse on their own [34]. Experiences in the 20,000 Days Campaign highlighted an unexpected difficulty when successful change packages were ready to be "handed back" to the main business.

Quality improvement initiatives need to be resource neutral, or use existing resources more effectively if they are to continue [34]. After a decade of rising health spending, expecting successful pilots to be added to current activity is no longer feasible. Over the period of the 20,000 Days Campaign implementation, the forecast revenue increase for CMDHB reduced, which put increasing pressure on service managers to test the business cases of the changes being piloted by the Collaborative teams.

The benefit of an innovation is invariably more tentative than the very concrete costs of stopping or changing a particular service. This puts even more emphasis on having good evidence of how much extra workload might be involved in putting an improvement in place. In the "art of exit", Bunt and Leadbeater draw on public sector experiences from many countries (including the UK's Middlesex Hospitals experience of reconfiguring their hospital to prevent demand for acute services) to present a model that interweaves actions to innovate, with actions to decommission or stop services [35]. They argue that a capability is needed to navigate between these two actions, and stress the importance of having good information to guide the process of innovation, along with a degree of financial sophistication. Collaborative team leaders and participants in the first Campaign had found it discouraging to have to renegotiate support for successful change ideas, once the target

had been achieved. This need was picked up in Beyond 20,000 Days when the business case for a particular change idea became a more significant part of the process of deciding which Collaborative teams would be chosen.

Conclusion

The Campaign was designed as a one-off event to achieve a single target and was able to demonstrate success in meeting that target. By 1st July 2013, CMDHB's own monitoring indicated they gave back to the community 23,060 healthy and well days.

Campaign leadership was successful in keeping the energy and motivation of Campaign participants throughout the 18 months. Eighty per cent of questionnaire respondents agreed or strongly agreed that the Campaign made a contribution to building a culture of quality improvement. Seventy-eight percent agreed that it was the best thing CMDHB had done in a long time, and 71 per cent said it was a huge success.

The 20,000 Days Campaign was "pushing on an open door" as the CMDHB culture was receptive and responsive to change, the broader policy settings reinforced the priority that needed to be given to the Campaign's goal, and local evidence of the need to do things differently was widely available.

The structure provided by the IHI Breakthrough Series provided the tools and the mind-set that encouraged on-going engagement. The early focus on working with the willing, for example, helped overcome the type of concerns raised in recent evaluations of BSMC initiatives that staff can become bombarded with sets of new initiatives that they struggle to engage with [25].

Within the Campaign, the application of the Model for Improvement as a way of testing change ideas in small scale measurement cycles worked well. Campaign leaders explained that it meant teams were not just "sitting around in meetings talking", but were looking and learning from data. Campaign participants reported applying PDSA cycles, agreeing goals and learning from tests that failed, but were more tentative when assessing how well they measured progress.

A secondary assessment by the evaluation team of eight Collaborative Team dashboards found data analysis was a point of vulnerability in the Campaign, due to difficulties in finding, interpreting and presenting data in meaningful ways, and in linking the Team dashboard data to the overall goal.

The value of the days saved target was seen by those leading the Campaign as providing a focus and end point, although streamlining the patients journey and building the overall capability for change in the organisation, were often singled out as of greater importance than the exact 20,000 days by both Campaign and Collaborative team leaders.

The 20,000 Days Campaign coped with a diversity of change concepts by being prepared to "learn as you go". Substantial learning was generated in the first 20,000 Days campaign to ensure the next set of Collaborative teams would be set up to succeed. The following box lists the insights taken into the next Campaign ("Beyond 20,000 Days").

Lessons Learnt

CHOOSING SUCCESSFUL COLLABORATIVE TEAMS INVOLVES:

- Giving priority to change concepts that integrate secondary care, primary care and the community to reach the goal of reducing demand on the hospital.
- Ensuring Collaborative teams are formed around topics of a size and complexity that requires multi-disciplinary teams to come together in regular meetings.
- Requiring budgetary information of the costs associated with downstream change, as well as the potential size of impact (i.e. the number of days saved).
- Putting in place a Dragons' Den to align initial thinking with other organisational priorities.

RUNNING SUCCESSFUL COLLABORATIVE TEAMS INVOLVES:

- Requiring an **expert team** to ensure any change is clinically safe and appropriate*, and* a **working group** of people who are able to meet weekly or fortnightly to actually do the testing and the analysis.
- Looking for a Collaborative team mind-set prepared to spend time testing a change idea, rather than moving straight to implementing the change.
- Supporting teams supported with a small number of realistic and feasible outcome indicators, and a wide variety of process indictors.

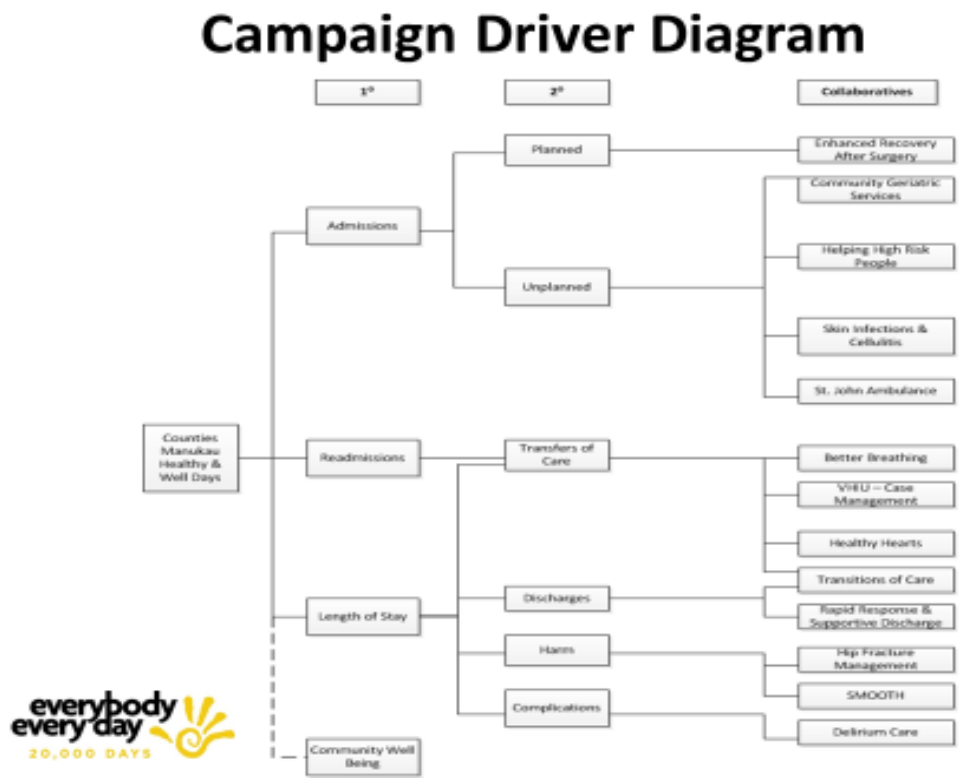
RUNNING A CAMPAIGN REQUIRES:

- An ability to **adapt and learn**: the Campaign aimed for small incremental change working with those willing. Adjustments were made as more was learnt about how the IHI approach worked in practice.
- Thinking about the **exit plan**: having good evidence of how much extra workload might be involved in putting an improvement in place, *and* who needs to spread change when initiatives have been proved successful, requires planning earlier rather than later.

Annex One: Glossary

Quality Improvement Collaboratives	A structured approach to convening a group of similar healthcare organisations to work together for a defined period of time to implement best practices and support one another in making rapid, sustainable changes.
IHI Breakthrough Series Collaborative	A particular form of quality improvement collaborative which includes support from both subject matter experts and application experts to more effectively propel improvement
Model for Improvement	A model covering four key elements of successful process improvement: specific and measureable aims, measures of improvement that are tracked over time, key changes that will result in the desired improvement, and a series of testing cycles (known as Plan Do Study Act or PDSA cycles) during which teams learn how to apply key change ideas to their organisation
Plan Do Study Act (PDSA) cycle	A four step problem solving process also known as a Denning, Stewhart or control cycle, circle or wheel. It encompasses a process of carrying out small sale actions measuring if the actions led to expected outcomes and if not adjusting the actions.
Collaborative teams	Multi professional groups who share a common focus and meet regularly to identify and implement strategies for improving their collective response to a targeted issue.
Learning Sessions	Face to face meetings which bring together teams to exchange ideas
Action Periods	Periods where teams test and implement changes in their local settings and collect data to measure the impact of their changes

Annex Two


Campaign Driver Diagram
1°
2°
Collaboratives
Planned
Admissions
Unplanned
Enhanced Recovery After Surgery
Community Geriatric Services
Helping High Risk People
Skin Infections & Cellulitis
St. John Ambulance
Counties Manukau Healthy & Well Days
Readmissions
Transfers of Care
Better Breathing
VHEU – Case Management
Healthy Hearts
Transitions of Care
Discharges
Rapid Response & Supportive Discharge
Length of Stay
Harm
Hip Fracture Management
SMOOTH
Complications
Delirium Care
Community Well Being
everybody every day
20,000 DAYS

Annex Three: Questionnaire Framework

Collaborative Team environment (including effective multidisciplinary teamwork)

Schouten L, Grol R, Hulscher M. Factors influencing success in quality-improvement collaboratives: development and psychometric testing of an instrument

Roles in my team were clearly defined
Collaborative participation was carefully prepared and organised
Management provided sufficient means and time

Kaplan HC, Provost LP, Froehle CM, et al. The Model for Understanding Success in Quality (MUSIQ): building a theory of context in healthcare quality improvement

Most members of my team had a chance to participate in decision making
The contribution of every team member was listended to and considered

Improvement tools (eg the project charters, PDSA cycles and other measurement tools)

Schouten L, Grol R, Hulscher M. Factors influencing success in quality-improvement collaboratives: development and psychometric testing of an instrument

My team formulated clear goals
My team focussed on achieving goals
My team tracked progress continually
Goals were readily measureable
Goals were discussed within the organisation
My team used measurements to plan changes
My team used measurement to test changes
My team used measurement to track progress
Goals were incorporated in organisational policy
Team members had leadership skills

Additional statements
PDSA cycles were applied frequently
My team used run charts with confidence

Resources and Information

Kaplan HC, Provost LP, Froehle CM, et al. The Model for Understanding Success in Quality (MUSIQ): building a theory of context in healthcare quality improvement

Existing information systems allowed us to easily pull data specifically needed for this project
Our team had adequate financial support, resources, and time to meet the aims of this project
Staff were given education and training in how to identify and act on quality improvement opportunities

The Structured Method

Schouten L, Grol R, Hulscher M. Factors influencing success in quality-improvement collaboratives: development and psychometric testing of an instrument

Useful knowledge and skills was given to my team during learning sessions
The focus was on practical application of knowledge and skills at learning sessions
My team developed skills in planning changes at learning sessions
My team learned from progress reporting by other teams at learning sessions
Teams reflected on results at learning sessions
Teams exchanged information outside learning sessions.

Additional statements
During the action periods we made progress in applying PDSA cycles
We refined our goals
Exchanged information with other teams.

Support from Experts

Schouten L, Grol R, Hulscher M. Factors influencing success in quality-improvement collaboratives: development and psychometric testing of an instrument

The expert support contributed practical experience
The expert support contributed scientific knowledge
The expert support was experienced in successfully improving care processes
The expert support gave advice on changes **needed to reach the teams' goal**

The Organisational Support

Kaplan HC, Provost LP, Froehle CM, et al. The Model for Understanding Success in Quality (MUSIQ): building a theory of context in healthcare quality improvement

The senior executives in my organisation are directly involved in quality improvement activities
This organisation places no value on quality improvement
Quality improvement is thoroughly integrated in this organisation
This Improvement Campaign was directly aligned with the organisation's key strategic goals

Additional statements
The Campaign goal was discussed widely

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